Faculty of Arts

University of Helsinki

Towards a typology of voice syncretism

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DOCTORAL DISSERTATION

To be presented for public examination with the permission of the Faculty of Arts of the University of Helsinki in Auditorium PIII, Porthania, on the 7th of November, 2020, at 12 o'clock.

Helsinki 2020

Updated version (November 17th, 2020):

- Minor typographical errors corrected.
- Disarranged data in appendices B and C fixed.
- Table layouts optimised for electronic viewing.

ISBN 978-951-51-6724-8 (paperback)
ISBN 978-951-51-6725-5 (PDF)

Unigrafia
Helsinki 2020

Til mine forældre
for deres evige støtte.

Abstract

This dissertation is a typological study of the cross-linguistic diversity in the syncretism between two or more of the following seven voices: passives, antipassives, reflexives, reciprocals, anticausatives, causatives, and applicatives. The study is primarily based on a survey of 222 genealogically and geographically diverse languages, but also addresses data from dozens more. The main goal of the dissertation is to systematically describe variation in voice syncretism across the world's languages from a range of different perspectives both synchronically and diachronically, including formal marking, combinations – or patterns – of syncretism, and distribution.

The findings of the dissertation show that voice syncretism is a cross-linguistically prevalent phenomenon attested in almost half of the surveyed languages. More than forty different patterns of syncretism are attested in these languages, many patterns of which have hitherto received little or no prior treatment in the literature. These patterns vary greatly in marking, complexity, frequency, and distribution, which suggests that voice syncretism is a more diverse phenomenon than hitherto acknowledged. Furthermore, it is demonstrated that the said syncretism can evolve along various diachronic pathways, several of which appear to be bidirectional, indicating that the diachrony of voice syncretism is more intricate than previously assumed.

The dissertation is structured in a manner that allows for information on individual patterns of voice syncretism to be conveniently accessed, and it is thus hoped that it will serve as a reference and starting point for further research on the topic.

Acknowledgments

First and foremost, I would like to express my gratitude to my preliminary examiner, Andrej Malchukov, for his constructive comments on my dissertation and his willingness to serve as my opponent despite the difficult circumstances posed by COVID-19. I would also like to extend my sincere thanks to my other preliminary examiner, Martin Haspelmath, for his insightful feedback on my work and for inviting me to Leipzig for a memorable academic sojourn.

Next, I wish to offer my special thanks to my primary supervisor, Seppo Kittilä, for our many conversations, his wise counsel, expeditious assistance, and good humour during my doctoral research. I am also particularly grateful to my secondary supervisors, Matti Miestamo and Kaius Sinnemäki, for their valuable advice and many beneficial suggestions through the years that have helped improve this dissertation in numerous ways.

Furthermore, I would like to express my appreciation to Riho Grünthal for his guidance during the early stages of my research, and not least for warmly welcoming me to the University of Helsinki. I also want to thank Nailya Philippova, Erika Sandman, Olli Silvennoinen, Sami Honkasalo, Francesca Di Garbo, and Eri Kashima – with each of whom I have been lucky to share an office for shorter or longer periods of time during the last four years – for their good company and many fruitful discussions. Many thanks also go to my other friends and colleagues at the University of Helsinki with whom I have had innumerable intellectual and casual interactions through the years, including Ricardo Napoleão de Souza, Daniela Casartelli, Ekaterina Gruzdeva, Juha Janhunen, Max Wahlström, Maria Khachaturyan, Stef Spronck, Juha Yliniemi, Sonja Dahlgren, Chingduang Yurayong, Lotta Jalava, Ksenia Shagal, Mathias Creutz, Jörg Tiedemann, Jack Rueter, Janne Saarikivi, and Denis Kuzmin. Particular thanks to Pekka Posio and Eeva Sippola for serving as faculty representatives at my defence, and to Don Killian for helping me gain access to various publications and other resources which would otherwise have remained out of my reach during the last stages of my research.

Moreover, I would like to thank Susanne Michaelis, Katarzyna Janic, and Ilja Seržant for their enriching observations and comments on my research during my stay in Leipzig, as well as Mikael Parkvall for bra häng. I also want to acknowledge various helpful suggestions provided by Fernando Zúñiga and Eitan Grossman at the very beginning of my research as well as all the feedback I have gotten from various linguists at different conferences around the world. Likewise, I want to explicitly recognise the efforts of all the fieldworkers out there who make the study of linguistic typology possible.

Finally, I wish to thank my family and my friends for their support during my doctoral adventures, in particular my wife, Jeannette, for her patience and perpetual encouragement.

List of abbreviations

Glossing

1	First person	**DEM**	Demonstrative	**NAME**	Personal name
2	Second person	**DET**	Determiner	**NEG**	Negation
3	Third person	**DIM**	Diminutive	**NF**	Non-feminine
A	Agent	**DISC**	Discursive	**NOM**	Nominative
ABL	Ablative	**DIST**	Distal	**NONLOCUT**	Non-locutor
ABS	Absolutive	**DU**	Dual	**NPST**	Non-past
ACC	Accusative	**EP**	Epenthetic	**NSIT**	New situation
ACT	Active	**ERG**	Ergative	**OBJ**	Object
ADE	Adessive	**EVID**	Evidential	**OBL**	Oblique
ANAPH	Anaphor	**EXCL**	Exclusive	**OPT**	Optative
ANIM	Animate	**F**	Feminine	**PART**	Partitive
ANTC	Anticausative	**FIN**	Finite	**PERS**	Person
ANTP	Antipassive	**FOC**	Focus	**PFV**	Perfective
AOR	Aorist	**FRUST**	Frustative	**PL**	Plural
APPL	Applicative	**FUT**	Future	**POSS**	Possessive
ART	Article	**INCH**	Inchoative	**PROG**	Progressive
ASP	Aspect	**INCL**	Inclusive	**PROP**	Proprietive
ASSOC	Associative	**IND**	Indicative	**PRS**	Present
AUG	Augmented	**INST**	Instrumental	**PST**	Past
C	Concord	**INT**	Intentional	**REAL**	Realis
CAUS	Causative	**INV**	Inverse	**REL**	Relative
CAUSEE	Causee	**IPFV**	Imperfective	**RDPL**	Reduplication
CL	Classifier	**LNK**	Linker	**REFL**	Reflexive
CTR	Contrastive	**LOC**	Locative	**RECP**	Reciprocal
COM	Comitative	**M**	Masculine	**RESTR**	Restrictor
CONJ	Conjunctive	**MAL**	Malefactive	**SBJ**	Subject
CONN	Connector	**MID**	Middle	**TH**	Thematic
CONT	Continuative	**MIN**	Minimal	**TOP**	Topic
CONV	Converb	**MIR**	Mirative	**TR**	Transitive
DAT	Dative	**MED**	Medial	**UND**	Undergoer
DEF	Definite	**MOD**	Modal	**Q**	Question

Macroareas

AF	Africa	**PN**	Papunesia	**NA**	North America
EA	Eurasia	**AU**	Australia	**SA**	South America

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1 Introduction

This dissertation provides a typological study of resemblance in formal verbal marking between two or more of the following seven clausal constructions: passives, antipassives, reflexives, reciprocals, anticausatives, causatives, and applicatives. Henceforth, these constructions will be called VOICES,[1] their formal marking will be called VOICE MARKING, and any resemblance in the aforementioned marking will be called VOICE SYNCRETISM. The latter term here denotes resemblance in formal marking regardless of whether the marking in two or or more voices is related semantically and/or diachronically (cf. Zúñiga & Kittilä 2019: 233f.). Thus, the said term refers strictly to the polyfunctionality or coexpression of voice marking (cf. Haspelmath 2019: 21).

Each of the seven voices listed above has received considerable attention in the literature, and it is well-known that some of the said voices can share the same voice marking. For instance, languages in which the reflexive and reciprocal voices share the same marking can be found throughout the world. This PATTERN of voice syncretism, i.e. reflexive-reciprocal syncretism, is illustrated for six geographically and genealogically diverse languages on the following page (1); the Bantoid language Namibian Fwe of Africa (Gunnink 2018: 269f.), the South-Central Dravidian language Telugu of Eurasia (Subbarao & Murthy 1999: 226, 233), the Mangrida language Nakkara of Australia (Eather 2011: 251), the West Bougainville language Rotokas of Papunesia (S. Robinson 2011: 101, 222), the Mixe-Zoque language Ayutla Mixe of North America (Romero-Méndez 2009: 371f.), and the language isolate Kamsá of South America (O'Brien 2018: 129).

[1] Following Malchukov (2015, 2016, 2017), Creissels (2016), and Zúñiga & Kittilä (2019), the term "voice" in this dissertation will not only be used in reference to constructions like passives, antipassives, and reflexives, but also in reference to constructions like reciprocals, causatives, anticausatives, and applicatives.

Examples 1. Reflexive-reciprocal syncretism across the world

	REFL		RECP	
N. Fwe (AF)	***-rì-****kùnkùmún-*	'to brush self'	***-rì-****shák-*	'to love e.o.'
Telugu (EA)	*gillu-**konn-***	'to pinch self'	*tiṭṭu-**konn-***	'to scold e.o.'
Nakkara (AU)	*bburda-**ndjiya-***	'to hit self'	*kkulakki-**ndjiya-***	'to wake e.o.'
Rotokas (PN)	***ora-****karekare-*	'to scratch self'	***ora-****uugaa-*	'to kiss e.o.'
A. Mixe (NA)	***nay-****tsuk-*	'to cut self'	***nay-****akook-*	'to kill e.o.'
Kamsá (SA)	***en-****onÿ-*	'to see self'	***en-****chwaye-*	'to greet e.o.'

While some patterns of voice syncretism – like the reflexive-reciprocal syncretism illustrated above – have been the focus of much scrutiny, discussions of voice syncretism are generally sporadic and implicit, and a comprehensive typological survey of the phenomenon has hitherto not been undertaken (Malchukov 2017: 3f.). This dissertation strives to fill this gap through a systematic investigation of voice syncretism from both a synchronic and diachronic perspective through a survey of a language sample encompassing 222 languages. The reflexive-reciprocal syncretism exemplified above (1) represents but one of more than a hundred patterns of voice syncretism that can be logically posited for the seven voices of focus in this dissertation. These patterns can be divided into SIMPLEX patterns involving two voices (like reflexive-reciprocal syncretism) and COMPLEX patterns involving more than two voices (e.g. reflexive-reciprocal-anticausative syncretism). The latter kind of pattern logically entails the former; for instance, a language with complex reflexive-reciprocal-anticausative syncretism naturally also possesses reflexive-reciprocal, reflexive-anticausative, and reciprocal-anticausative syncretism.

Furthermore, in some languages the voice marking in one voice does not necessarily bear full resemblance to the voice marking in another voice under all conditions, only under certain conditions – or the resemblance might only be partial in the first place. There are thus different TYPES of voice syncretism. Additionally, patterns of voice syncretism have diverse diachronic origins, and one pattern is not necessarily the result of the same process of diachronic development in different languages. For instance, reflexive-reciprocal syncretism has a reflexive origin in some languages (§7.1.1) but a reciprocal origin in other languages (§7.2.1).

The typological diversity of voice syncretism briefly presented here is further discussed in different chapters of this dissertation. The various objectives of these chapters are presented explicitly in the next section, while the general structure of the dissertation is described in §1.2. In turn, the general approach of the dissertation is addressed in §1.3, and the language sample upon which much of its analysis relies is discussed in §1.4.

1.1 Objectives

This dissertation's main goal of providing a typology of voice syncretism can be further divided into four primary objectives. These objectives are explicitly formulated in turn in this section.

The first objective is to define the seven voices of focus in the dissertation as comparative concepts in order to facilitate the investigation of voice syncretism. The voices in question are commonly defined according to certain notions like an argument-adjunct distinction, transitivity, grammatical roles, and an active voice. While these notions are intuitively clear, there is little consensus in the literature as to how they are best defined. Moreover, existing definitions are often based on language-specific criteria which prevents them from being established as comparative concepts. Rather than attempting to (re)define the said notions once again, alternative definitions avoiding the abovementioned notions will be proposed for each of the voices in this dissertation.

The second objective is to establish different types of voice syncretism both in terms of patterns and in terms of resemblance in voice marking. As hinted in the beginning of this chapter, voice syncretism is characterised by great diversity, yet discussions of the phenomenon in the literature are often restricted to a relatively small number of patterns of syncretism which are generally simplex and share identical voice marking. As a result, the extent to which voice syncretism can vary cross-linguistically has hitherto remained largely unknown, and this variation will therefore be outlined and mapped out in this dissertation.

The third objective is to provide a descriptive account of voice syncretism both synchronically and diachronically. While some patterns of voice syncretism have

received much attention in the literature, other patterns are hardly discussed at all. Moreover, data from certain languages (most notably of the Indo-European language family) is commonly recycled while data from other languages are often neglected. Consequently, a general synchronic cross-linguistic picture of voice syncretism has hitherto been lacking, wherefore voice syncretism will be investigated systematically with regard to type, pattern, and geography for the 222 languages in the language sample of this dissertation. Furthermore, it is widely assumed that the rise of voice syncretism can be explained by a relatively small number of diachronic scenarios, while alternative origins rarely are considered. However, growing evidence suggests that voice syncretism can have more diverse diachronic origins than previously thought, for which reason the diachrony of the said syncretism will be investigated methodically according to individual patterns of voice syncretism.

The fourth objective is to provide a distributional account of voice syncretism based on data obtained from the abovementioned language sample, as the limited current information on the distribution of voice syncretism consists largely of estimates. Thus, a statistical overview of voice syncretism according to type, frequency, probability in addition to geography will be provided in this dissertation.

1.2 Structure

The following section provides an overview of the approach employed in the present dissertation addressing principles of typological research, cross-linguistic comparison, and language sampling; while §1.4 provides a description of the language sample composed for the dissertation. These sections are followed by chapter 2 which addresses the notions mentioned in the previous sections that are often found in existing voice definitions (§2.1) but avoided in the definitions proposed and presented in this dissertation (§2.2). In turn, chapter 3 gives an overview of previous research into voice syncretism (§3.1) followed by descriptions of different types of voice syncretism which are defined according to resemblance in voice marking (§3.2).

Chapter 4 provides an extensive investigation of simplex voice syncretism covering all logically possible patterns of the said syncretism. As further explained in the beginning of the aforementioned chapter, the various patterns are divided into four groups to facilitate their discussion: middle syncretism (§4.1), antipassive syncretism

(§4.2), causative syncretism (§4.3), and applicative syncretism (§4.4). Chapter 5 presents a similar overview of complex voice syncretism with descriptions of complex middle syncretism (§5.1), antipassive syncretism (§5.2), causative syncretism (§5.3), and so-called multiplex syncretism characterised by great complexity (§5.4). The simplex and complex voice syncretism discussed in chapters 4 and 5 is subsequently considered from a statistical and distributional perspective in chapter 6, according to type, frequency, geography, and probability (§6.3). This chapter even includes brief discussions of the distribution of both voices in general (§6.1) and dedicated voice marking (§6.2). Having assessed the synchronic cross-linguistic diversity in voice syncretism, chapter 7 provides a closer look at the diachrony of the phenomenon according to its origin which can be reflexive (§7.1), reciprocal (§7.2), anticausative (§7.3), passive (§7.4), causative (§7.5), or applicative (§7.6).

Finally, chapter 8 serves as a conclusion in which the main findings pertaining to the typology of voice syncretism presented in this dissertation are summarised (§8.1) and prospects for further research outlined (§8.2).

1.3 Approach

The study of this dissertation belongs to the tradition of functional-typological linguistics which has gained increasing popularity in the wake of Greenberg's (1963) initial quest for universals. Thus, the approach of the dissertation is based heavily on cross-linguistic comparison to investigate voice syncretism and ultimately strive towards a typology thereof. To facilitate such comparison, the voice definitions employed in the dissertation and presented in the next chapter are all established as comparative concepts according to principles outlined by Haspelmath (2010a-b, 2011a-b, 2014, 2016a-b, 2018). Comparative concepts are specifically designed for cross-linguistic comparison and thus contrast with language-specific categories which cannot be used for this purpose. As noted by Stassen (2010: 91), "language-independent definitions of typological domains cannot be formulated in purely formal/structural terms" because "formal domain definitions are, by their very nature, language dependent." Stassen credits Greenberg (1963, 1966) with this insight and argues that "Greenberg's point of view has, explicitly or tacitly, been adopted by all authors of major typological studies in the last three decades" (Stassen 2010: 92; see

also 1985: 14f.). Haspelmath (2010a: 664f.) concurs, noting that "very few earlier authors have made this important distinction explicit, even though in practice many linguists distinguish the two notions implicitly." Other notable advocates of an explicit distinction between language-specific categories and comparative concepts include, e.g., Croft (1990: 11f.; 1995: 88; 2003: 13f.), Givón (2001a: 22ff.), and Song (2001: 10ff.). Dryer (1997, 2016) illustrates the distinction between language-specific (or "crosslinguistic") categories and comparative concepts in the following vivid manner:

> "[…] belief in crosslinguistic categories leads linguists to ask questions which have no answer because belief in crosslinguistic categories leads linguists to think that there ARE boundaries that define what is and what is not an instance of a crosslinguistic category. But there is no evidence that such boundaries exist. So two linguists who disagree about whether a particular typological outlier is or is not an instance of a crosslinguistic category are really disagreeing about where the boundary of the alleged crosslinguistic category falls. But since there is no evidence that such boundaries exist, the disagreement is one that has no resolution." (Dryer 2016: 317)

Dryer goes on to call the abovementioned disagreement "a fundamental problem with crosslinguistic categories" and continues:

> "This is not a problem for comparative concepts because although they require drawing boundaries, no claim is made that these boundaries actually exist. Rather, these boundaries are simply drawn for the purposes of a particular typological study and there is no problem with one study drawing the boundary in such a way that some phenomenon counts as an instance of a particular comparative concept while another study draws the boundary slightly differently so that for the purposes of this second comparative concept, the phenomenon does not count as an instance." (Dryer 2016: 327)

In other words, as noted by Haspelmath, "comparative concepts do not exist in the absence of comparative linguists" (2018: 93) and "are not psychologically real, and they cannot be right or wrong" (2010a: 665). This freedom enables and encourages the exploration of alternative definitions for well-known linguistic notions and

concepts. Thus, as will become evident in the next chapter, in this dissertation the definitions of passives, antipassives, reflexives, reciprocals, anticausatives, causatives, and applicatives have been approached from a rather different perspective than normally seen in the literature. As further argued in the said chapter, definitions of the aforementioned voices commonly rely on notions like an argument-adjunct distinct, transitivity, grammatical roles, and an active voice, yet there is little consensus as to how and if these notions can be established as comparative concepts (§2.1). Rather than attempting to redefine the notions in question, an attempt has been made to capture the general linguistic understanding of the seven voices listed above without them (§2.2). The comparative concepts presented in this dissertation have been defined with transparent rigid boundaries to avoid the "fuzziness" pertaining of prototype-based definitions (cf. Geeraerts 1989) to promote reproducibility (cf. Haspelmath 2018).

In turn, voice syncretism will primarily be investigated in a specific sample of language which raises the issue of language sampling which has been the topic of much debate since Bell (1978) first argued explicitly and systematically that genetic, areal, and typological biases are to be avoided when sampling languages. In other words, the languages in any given sample should preferably be genetically, geographically and typologically diverse. As noted by Rijkhoff et al. (1993: 171), the aforementioned biases often go hand in hand: "if languages are closely related in time, chances are that these languages are also related in space (geographically), in type (having inherited, for instance, the basic word order pattern of their common ancestor), and are spoken by people sharing the same kind of culture" (see, e.g., Bakker 2010: 108f. on the cultural bias). Furthermore, certain areas of the world are better covered in terms of language descriptions than others and "for about two thirds of the existing languages, no grammar or even grammatical sketch is currently available" which can lead to a bibliographical bias (id.: 106f.). To avoid these biases, a multitude of different sampling methods have been proposed in the literature during the last four decades (for an overview, see Miestamo et al. 2016). Language samples produced by these methods can by and large be divided into two main types: probability samples and variety samples. The former sample is "meant to be used for the statistical testing of tendencies and correlations, which makes the requirement of the independence of the

sampled units important" (id.: 233). However, such independence is difficult to achieve because "even in a relatively small sample it is practically impossible to avoid the inclusion of languages that are not somehow genetically related or spoken in the same region" (Rijkhoff & Bakker 1998: 265). The issue of independence is less pronounced for a variety sample which is not necessarily meant for statistical testing but for capturing "as much variety as possible in the linguistic realizations of the phenomena under investigation and to reveal even the rarest strategies or types of expression in the domain explored" (Miestamo et al. 2016: 234).

The language sample of this dissertation is designed as a variety sample in order to facilitate the typological investigation of voice syncretism and the diversity thereof. The languages of the sample have more specifically been chosen according to the so-called Genus-Macroarea sampling method, first conceived by Miestamo (2003, 2005) and further elaborated by Miestamo et al. (2016: 247ff.). As discussed in the next section, this method incorporates stratification for geographical and genealogical affiliation (in the spirit of Dryer 1989, 1992, 2000) and thereby strives to maintain a high degree of interlingual independence.

Finally, it can be noted here that descriptive grammars have served as the primary sources for data on voice syncretism in the languages of the sample presented in the next section. The data for most languages is based on a single source, but for a few languages data has been obtained from multiple sources, including articles and dictionaries. In cases where more than one source has been consulted for a language, care has been taken to ensure that all sources represent the same variety or dialect of the language in question. Furthermore, some data has been obtained through personal correspondence or is based on personal knowledge, as duly noted where relevant. The primary sources are listed in appendix A according to genus and language, while the data itself is listed in appendices B and C.

1.4 Sample

As the name suggests, the Genus-Macroarea sampling method revolves around two basic concepts: genus and macroarea. Miestamo et al. (2016) define the former concept as "a level of genealogical classification intended to be comparable across the world in terms of time depth" which "is not more than approximately 3,500 to 4,000

years" (id.: 238); and the latter concept as "continent-size linguistic areas which are independent of each other, but within which languages are to some extent typologically similar due to either (ancient) contact or (very deep) genealogical affinity" (id.: 240; see also Dryer 1992: 84). Together these concepts serve to stratify a given language sample to ensure a high degree of interlingual independence. The joint discussion of the two concepts can be traced back to the early methodological studies of language sampling by Bell (1978) and Dryer (1989). Bell estimated the number of genera in the world to be 478, while Dryer provided an estimate of 322 genera. Furthermore, Dryer divided the genera into five continental areas (in his terminology at the time, "linguistic areas"): Africa, Eurasia, Australia-New Guinea, North America, and South America (id.: 268). The number of genera has subsequently been adjusted repeatedly (cf. approximately 458 genera in Dryer 2005: 584-642; 413 genera in Miestamo 2005: 34; 521 genera in Dryer 2013 and Miestamo et al. 2016). The figure of 542 genera found in this dissertation is based upon the number of genera found in the World Atlas of Language Structures (WALS) as of August 2019. The number of macroareas (and their boundaries) has also been revised in subsequent decades, and the dissertation again follows WALS by recognising six macroareas as of August 2019: Africa, Eurasia, Papunesia, Australia, North America, and South America (for a more detailed discussion of these macroareas, see Hammarström & Donohue 2014). The number of WALS genera are listed according to macroareas in table 1 below.

Table 1. Genera and macroareas according to WALS

	Genera	
	#	**%**
Africa	77	14.2
Eurasia	82	15.1
Australia	42	7.8
Papunesia	136	25.1
North America	101	18.6
South America	104	19.2
	542	100

The sample composed for this dissertation represents a so-called core sample in which all languages belong to different genera (Miestamo et al. 2016: 250ff.). The

sample consists of 222 languages which were chosen one by one from each macroarea in alternating turns. The genera were chosen on a largely random basis, yet availability of data sources had a noteworthy effect on the choice of genera as well: genera encompassing languages for which little data could be obtained had to be ignored, and more recent comprehensive descriptive grammars were generally preferred over older less detailed grammatical descriptions. Moreover, choice of genera was also based upon wider genealogical affiliation to some extent; while some WALS genera constitute a language isolate or small language family on their own, other genera form part of a larger language families, and genera from the same family were avoided whenever possible. However, as noted by Miestamo et al., "[u]nless the size of the sample is very small, the number of distinct language families is soon exhausted for some macroareas" and in such cases "the families that are already represented are made available again, and a second round is started" (id.: 257f.). Consequently, certain language families are represented by more than one genus in the language sample of this dissertation.

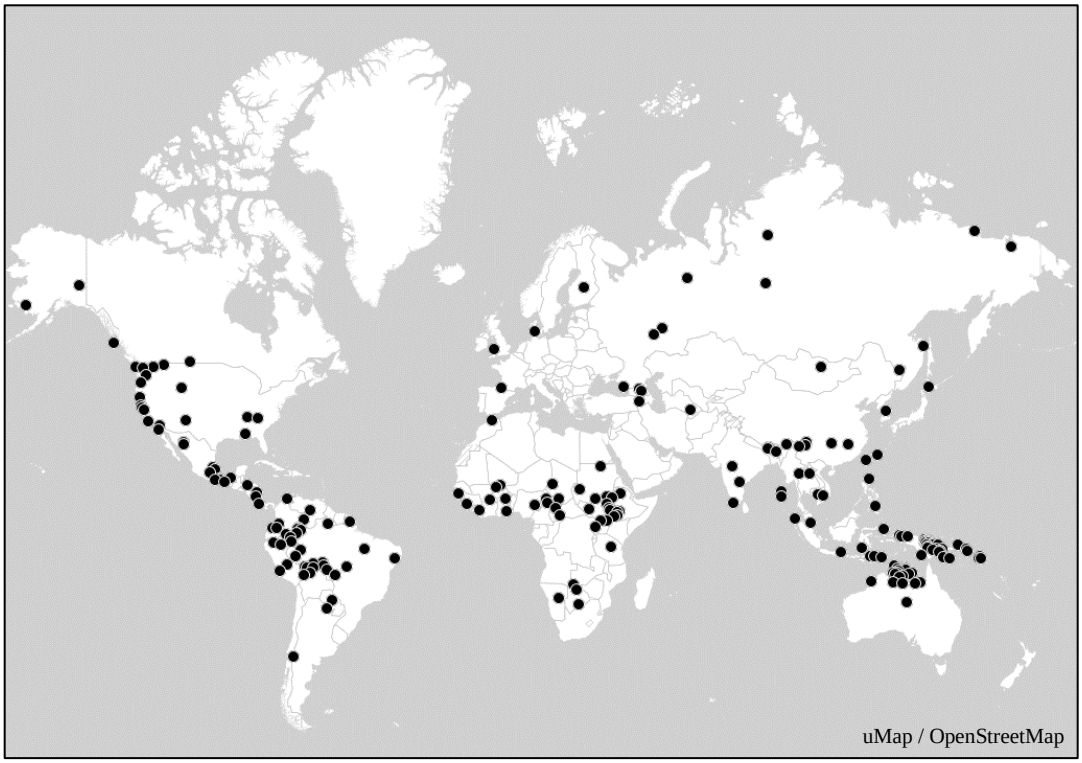
Table 2. Sample according to genera and macroareas

	Genera	
	#	**%**
Africa	39	50.7
Eurasia	41	50.0
Australia	21	50.0
Papunesia	48	35.3
North America	36	35.6
South America	37	35.6
	222	

The geographical distribution of the languages in the sample is presented in table 2 above; the 222 genera included in the sample represent roughly 41 percent of the 542 genera recognised by WALS (cf. table 1). Note that the percentages in this table are based on the total number of genera in the individual macroareas and not on the total number of genera in the world. Furthermore, note that due to the biographical bias mentioned in the preceding section it was noticeably more difficult to obtain satisfactory data for genera of the Papunesian, Northern American, and South American macroareas than for genera of the African, Eurasian, and Australian

macroareas. Consequently, an approximate upper limit on the percentage of genera included from the individual macroareas was eventually established at 35 percent for the three former macroareas and at 50 percent for the three latter macroareas. Thus, the language sample is proportionally biased slightly towards the Old World and Australia in terms of geographical coverage, though it is worth observing that the New World and Papunesia are better represented in absolute numbers. A restricted sample (Miestamo et al. 2016: 250f.) could alternatively be extracted from the core sample by lowering the percentages of the African, Eurasian, and Australian macroareas from 50 to 35 percent, but this procedure would inevitably lead to loss of diversity and has therefore been avoided. In any case, a chi-squared goodness-of-fit test of the sample in table 2 below based on the expected proportions for each macroarea listed in table 1 above shows that the differences in the distribution of genera across the macroareas are not statistically significant (p-value = 0.241). Thus, the geographical distribution of genera in the sample is therefore considered reasonably balanced.

The specific genera and languages included in the core sample are listed in appendix A and plotted onto the map below. The appendix in question also shows the primary sources from which the data on the various languages has been collected.



2 Defining voices

As stated in chapter 1, the voices of focus in the present study are passives, antipassives, reflexives, reciprocals, anticausatives, causatives, and applicatives. These voices have been the topic of much debate in the literature and much effort has been put into identifying and pinpointing their properties and features. Consequently, definitions of the individual voices proposed in the literature differ to varying degrees depending on the criteria upon which they are based, yet many voice definitions are rather similar with regard to the manner in which they are defined. More specifically, existing definitions commonly rely explicitly or implicitly upon notions of an argument-adjunct distinction, transitivity, grammatical roles, and/or an active voice. However, although these notions are intuitively clear, there does not seem to be any consensus as to how they can best be defined, as further discussed in §2.1. Rather than attempting to (re)define the notions yet again, alternative voice definitions which avoid the said notions have been designed for – and serve as comparative concepts in – the present study.

As described in more detail in §2.2, the abovementioned alternative voice definitions are instead based solely on i) a comparison of two clausal constructions, ii) the number of semantic participants in the constructions, iii) the semantic roles of certain semantic participants in the constructions; and iv) the formal verbal marking of the constructions. It is worth reiterating here that the present study focuses exclusively on the syncretism of formal verbal marking for which reason "uncoded alternations" of various kinds (Zúñiga & Kittilä 2019: 178ff.) are not covered by the definitions presented in this chapter.

2.1 Voices revisited

The notions of an argument-adjunct distinction, transitivity, grammatical roles, and an active voice are illustrated on the next page by an oft-cited causative definition by Dixon & Aikhenvald (2000). It is evident from the wider context in which the definition is found (id.: 2f.) that Dixon & Aikhenvald consider the grammatical roles S, A, and O arguments ("core arguments") in contrast to adjuncts ("peripheral

arguments"). Furthermore, Dixon & Aikhenvald argue that a prototypical causative derives a transitive clause from an intransitive clause (id.: 13), and the adjective "underlying" (id.: passim) refers to a certain type of voice believed to be more basic than others; in other words what is traditionally called an active voice. For the sake of this illustration, the various notions have been underlined in the definition. For other exemplificative voice definitions based on similar principles, see, e.g., Peterson (2007: 1f.) on applicatives, Siewierska & Bakker (2012: 151f.) on passives, and Heaton (2017: 63f.; 2020: 132ff.) on antipassives. For other publications employing one or more of the notions, see the references in the following sections.

> "The characteristics of a prototypical causative are:
>
> (a) Causative applies to an underlying intransitive clause and forms a derived transitive.
>
> (b) The argument in underlying S function (the causee) goes into O function in the causative.
>
> (c) A new argument (the causer) is introduced, in A function.
>
> (d) There is some explicit formal marking of the causative construction."
>
> (Dixon & Aikhenvald 2000: 13)

The notions addressed above are intuitively clear and consequently widely presupposed and employed ad libitum in the literature without explicit definitions. Nevertheless, the notions have been the topic of ongoing debate for decades, and there does not seem to be any agreement as to how they can best be defined. Furthermore, definitions of the notions tend to rely on language-specific criteria which impedes their use as comparative concepts. These issues are addressed for each of the notions in the following sections.

2.1.1 Arguments and adjuncts

The argument-adjunct distinction refers to a dichotomy first formulated by Tesnière (1959) who in clauses distinguished "actants" (i.e. *les êtres our les choses* "the beings or things") from "circumstances" (*circonstances*; i.e. the time, place, manner, etc., according to which a process unravels; id.: 102). The terminology of this dichotomy

varies considerably in the literature, and so do definitions thereof. The term "argument" is favoured over "actant" in more recent publications (e.g. Comrie 1993; Kazenin 1994; Dik 1997; Croft 2001, 2012; Haspelmath & Müller-Bardey 2004; Kulikov 2010; Wichmann 2014; Haspelmath & Hartmann 2014) and also often appears in the compound "core argument" (e.g. Dixon 2000; Dixon & Aikhenvald 2000; Kazenin 2001a; Van Valin 2001, 2005; Peterson 2007; Malchukov 2015, 2016) to distinguish it from a "peripheral argument," another term for "circumstance" (e.g. Dixon 2000; Dixon & Aikhenvald 2000; Peterson 2007; Malchukov 2016). The term "adjunct" is frequently employed in both older and more recent publications alongside or instead of "peripheral argument" and "circumstance" (e.g. Vater 1978, Comrie 1993; Croft 2001, 2012; Van Valin 2001, 2005; Peterson 2007; Wichmann 2014; Haspelmath & Hartmann 2015; Malchukov 2015), and so is the term "oblique" (e.g. Cooreman 1994; Kazenin 1994, 2001a; Haspelmath & Müller-Bardey 2004; Peterson 2007; Kulikov 2010; Malchukov 2015). For an overview of obsolete terminology, see Somers (1984: 508).

Tesnière (1959) provided a few criteria for distinguishing arguments from adjuncts alongside their definitions; e.g., arguments are indispensable for completing the semantic meaning of a verb while adjuncts are not, and adjuncts tend to need additional prepositional marking if they are nouns argument do not – unless a preposition is closely associated with the verb (for more details, see id.: 128). While the distinction itself has been highly influential, subsequent research has repeatedly shown that Tesnière's criteria cannot be applied to all languages. In fact, it has proven remarkably difficult to find any adequate criteria for distinguishing arguments from adjuncts and vice versa cross-linguistically. Illustratively, almost two decades after Tesnière's formulation of the dichotomy, Vater (1978: 21) notes that "the problem of how to differentiate between [arguments] and adjuncts has not yet been solved satisfactorily," and similar comments are provided by Somers (1984) in a paper "[o]n the validity of the [argument]-adjunct distinction in valency grammar." A decade later Comrie (1993: 906) remarks that "[t]he basic intuition behind this distinction is relatively clear, though difficulties arise as soon as one tries to make it more explicit, and there is as yet no generally accepted solution to these difficulties." Similar thoughts have been reiterated in the new millennium; Farrell (2005: 30) states that

"[a]lthough the conceptual distinction between argument and adjunct is relatively clear, the empirical basis for it is problematic," and Rickheit & Sichelschmidt (2007: 165) observe that "[t]he problem with the dichotomy is that the criteria for classifying an [argument or adjunct] are anything but clear." As discussed by Haspelmath & Hartmann (2015: 46ff.), many approaches to the differentiation of arguments and adjuncts are based on criteria pertaining to semantic entailment or verb-specificity of various kinds which are notoriously problematic in a cross-linguistic context.

The difficulties in properly distinguishing arguments from adjuncts cross-linguistically have prompted Haspelmath (2014: 4) to speculate that "it may be that no good cross-linguistic definition of arguments and adjuncts as syntactic elements that largely coincides with our intuitions will be possible." Faced with this problem, it has been suggested sporadically in the literature that the distinction between different clausal elements is not necessarily binary. For instance, Wichmann (2014: 1) argues that "instead of requiring a sharp distinction we may satisfy ourselves with a gradient one." An early advocate of a more gradient-like approach is Matthews (1981: 140f.) who proposes a trichotomy distinguishing so-called "non-peripheral complements," "non-complements," and "peripherals." Somers (1984: 524) extends this trichotomy to a hexachotomy encompassing "integral complements," "obligatory complements," "optional complements," "middles," "adjuncts," and "extraperipherals." More recently, Forker (2014) has proposed "a canonical approach to the argument/adjunct distinction" (Corbett 2005, 2007, 2013; Brown et al. 2013) in which canonical arguments and canonical adjuncts represent opposite poles on a gradient scale. Canonicity in this approach is determined according to five criteria (Forker 2014: 28ff.) and if it is assumed that each criterion can be either argument-like or adjunct-like, Forker's polychotomy accordingly has 32 distinctions. Nevertheless, although these polychotomous distinctions are undoubtedly more complex than a binary argument-adjunct distinction, both kinds of distinctions are subject largely to the same problems. For instance, Forker's five criteria are either based on the problematic concept of verb-specificity mentioned above (Haspelmath & Hartmann 2015: 46ff.) or language-specific; indeed, Forker (2014: 36) explicitly remarks that not all criteria necessarily apply to all languages which impedes cross-linguistic comparison.

A notable alternative to the argument-adjunct distinction is the microrole approach developed for the Leipzig Valency Classes Project to facilitate the cross-linguistic comparison of 70 verbal meanings and their syntactic structures in 30 languages (Hartmann et al. 2013, Malchukov & Comrie 2015a-b [ed.]). In this project the microroles for each of the aforementioned 70 verbal meanings were defined as comparative concepts (e.g. 'thinker' and 'thought content' for the meaning 'to think') which meant that problems pertaining to argumenthood and adjuncthood described above could be avoided. Illustratively, in Modern Standard Arabic 'thought content' is marked by the preposition *fī* and intuitively resembles an adjunct (Kász 2013) but in the Oceanic language Xârâcùù 'thought content' is seemingly not marked differently from other presumed arguments (Moyse-Faurie 2013). This approach is a satisfactory solution for typological studies of specific sets of verbs but is not readily applicable to studies which are unrestricted in their scope regarding verbal meanings, including the present study. However, the microrole approach importantly shows that an argument-adjunct distinction is not necessarily a prerequisite for cross-linguistic verbal investigations. In the spirit of this approach, an attempt has been made to avoid the aforementioned distinction in the voice definitions of the present study.

2.1.2 Transitivity and valency

Transitivity is omnipresent in linguistics and perhaps one of the most debated phenomena within the field. Indeed, Lazard (2002: 142) notes that transitivity "belongs to the oldest tradition of grammatical thinking in the Western world," and Kittilä (2010: 346) remarks that transitivity is "one of the core areas of linguistics." Furthermore, Dixon (1972: 128) argues that "[a]ll languages appear to have transitive and intransitive sentences" (see also Dixon 1979: 102; 1994: 6; 2000: 30; Dixon & Aikhenvald 2000: 2), and Hopper & Thompson (1982: 1) state that "[i]n many languages (and perhaps covertly in all languages) the transitivity relationship lies at the explanatory core of most grammatical processes." In fact, as observed by Næss (2007), the notion of transitivity appears to be so deeply rooted in linguistic tradition that it is "often used in a way which takes its content for granted, without any attempt at a precise definition," and "there is no universally accepted definition which captures

precisely the range of functions" (id.: 2). Instead, it is commonly assumed that a general abstract idea of the notion suffices.

LaPolla et al. (2011: 471) describe one conceptualisation of such an abstract idea in the following manner: "The traditional syntactic definition of transitivity says that a language has one or more constructions where two arguments are given special status in the clause as core (obligatory) arguments, as opposed to only one argument being given that status" (cf. Croft 2003: 143). This approach essentially represents an intransitive-transitive dichotomy: clauses with one argument are intransitive while clauses with more than one argument are transitive. The perhaps most prominent advocate of this approach is Dixon (2010b) who has stated that "[o]ne point to be stressed – and always kept in mind – is that *transitivity is a syntactic matter*" and that "[w]hen a clause is said to have a certain transitivity value, and when a verb is said to show certain transitivity possibilities, these are syntactic – not semantic – specifications" (original italics; id.: 116). Another notion similar to transitivity is valency which dates back at least to the late 1940s (e.g. de Groot 1949: 114f.) though its consolidation as a linguistic term is generally attributed to Tesnière (1959) who defines it as the number of arguments a verb is "susceptible to govern" (*susceptible de régir*; id.: 670; see also id.: 238). Valency and transitivity differ in this respect, as clauses with one argument are valent but not transitive: intransitives are monovalent, (mono)transitives divalent. However, in light of the discussion concerning the argument-adjunct distinction in the preceding section, the syntactic approaches to transitivity and valency described above are inherently problematic if argumenthood cannot be properly defined. Even if it is assumed that arguments can be readily distinguished from adjuncts cross-linguistically, other problems ensue as argued by Haspelmath (2011a): "[i]n individual languages, precise criteria for distinguishing two major clause types ('transitive', 'intransitive') can be found (e.g., particular argument-indexing patterns, passivizability, or even inflectional classes), but they are quite diverse and not generalizable across languages" (id.: 544).

Semantic approaches to transitivity differ from the syntactic approaches addressed above by generally being gradient in nature. The study of semantic transitivity has been pioneered notably by oft-cited Hopper & Thompson (1980) who argue that the transitivity of a clause can be established according to ten features each of which can

be given a "high" or "low" value: i) participants, ii) kinesis, iii) aspect, iv) punctuality, v) volitionality, vi) affirmation, vii) mode, viii) agency, ix) affectedness, and x) individuation. The more "high" features a clause has, "the more Transitive it is – the closer it is to CARDINAL transitivity" (original small caps; id.: 253). In a similar spirit, Givón (2001a: 209) highlights the importance of agency, affectedness, and perfectivity in particular: a prototypical transitive event involves "a volitional, controlling, active, initiating agent responsible for the event" (i.e. "the salient cause"), "a non-volitional, inactive, non-controlling patient that registers the event's changes-of-state" (i.e. "the salient effect"), and its verb "codes an event that is telic (compact), perfective (bounded), sequential (non-perfect) and realis (non-hypothetical)" (2001b: 93; see also 1984, 1990, 1995). In turn, Næss (2007) places emphasis on volitionality, instigation, and affectedness. According to her Maximally Distinct Arguments Hypothesis, "a prototypical transitive clause is one where the two participants are maximally semantically distinct in terms of their roles in the event described by the clause" (id.: 30); the two participants, agent and patient, are maximally distinct when the agent is volitional, instigating, and unaffected, and the patient non-volitional, non-instigating, and affected (id.: 44). Nevertheless, although these approaches to transitivity are certainly more nuanced than syntactic approaches, they are not unproblematic in relation to cross-linguistic comparison either due to their reliance on fuzzy categorisation. As argued by Haspelmath, semantic approaches to transitivity like those described above rely "on semantic prototype definitions that do not allow precise delimitation of transitive clauses from non-transitives clauses" (2011a: 544) and it is generally difficult to justify such prototypes, and prototypical definitions cannot be used for formulating testable generalizations" (2016: 313).

For the reasons above, no attempt will be made to (re)define transitivity in the present study. That is not to say that the various criteria according to which semantic transitivity is often defined are not of relevance themselves, only that they will not be treated collectively as defining criteria of an abstract notion of transitivity but treated individually wherever relevant.

2.1.3 Grammatical roles

Purported arguments (in contrast to adjuncts) are often classified according to their semantic and/or syntactic role in a clause. Traditionally, arguments have been classified as subjects, direct objects, and indirect objects; notions originally modelled on (Indo-)European languages and strongly associated with grammatical case: the subject with the nominative case, the direct object with the accusative case, and the indirect object with the dative case. However, it is well-known that this sort of classification does not perform well cross-linguistically because case marking does not correlate with presumed subject- and objecthood in many languages or lacks altogether. To account for such cross-linguistic variation, Dixon (1972) introduced the notions S, A, and O, which he defined "intransitive subject," "transitive subject," and "transitive object," respectively (vid, e.g., id.: 59, 128). This set of notions has later been followed by notions relevant for ditransitives (Croft 1990): T and G corresponding to a ditransitive direct object and a ditransitive indirect object, respectively. Observe that the notions O and G are also commonly called P and R, respectively. These five notions have become widespread in linguistics, yet their meanings are commonly taken for granted. As observed by Haspelmath (2011a), "it does not seem to be widely recognized yet that there are quite different and incompatible definitions of the SAPTR terms in the literature" (id.: 536).

Haspelmath (2011a) discerns three major approaches to the definitions of S, A, P, T, and R in the literature: a Dixonian approach, a Comrian approach, and a Bickelian approach. The former approach is epitomised by Dixon's (1972, 1979, 1994, 2010a-b) definitions of the notions based on transitivity, as already illustrated briefly above. In the Comrian approach the definitions of A and P are based more specifically on a so-called "prototypical transitive situation" in which the semantic agent is regarded as A and the semantic patient P (e.g. Comrie: 1981: 105; 1989: 11). In turn, a prototypical transitive situation – or a "typical two-argument clause" – involves a physical effect verb like 'to kill sb.' and 'to break sth.' (Haspelmath 2011a: 545ff.); see also Andrews (1985, 2007), Lazard (2002), and Creissels (2006). Likewise, T and R can be defined as "the theme and the recipient of typical physical transfers verbs of possession ('give', 'lend', 'send', etc.)" (Haspelmath 2011a: 558); see also Malchukov et al. [ed.] (2010). By contrast, S can be defined as the sole argument in a one-argument clause, or as any

argument that is marked or behaves like the sole argument in a one-argument clause (Haspelmath 2011a: 549f.). Finally, in the Bickelian approach the notions S, A, P, T, and R represent generalised semantic roles which are not restricted to a specific type of verb (Nichols 2008, Bickel & Nichols 2009, Bickel et al. 2010, Bickel 2011, Witzlack-Makarevich 2011). Agents are characterised as causers of events, volitional, sentient, and exist independently of events; while patients are typically affected by events, stationary relative to movement of other semantic participants, and/or undergo changes of state or in experience (Haspelmath 2011a: 554; see also Dowty 1991, Bickel et al. 2010: 384). In turn, A and P are the more agent-like and less agent-like arguments of a two-place predicate, respectively; and R and T the less patient-like and more patient-like arguments of the non-agent-like arguments of a three place-predicate, respectively (Bickel & Nichols 2009: 307; Bickel et al. 2010: 384).

The Dixonian approach is inherently problematic due to its reliance on notions of arguments (in contrast to adjuncts) and transitivity which have been addressed and discussed in the preceding two sections. In turn, the Bickelian approach is essentially subject to the same criticism as semantic transitivity addressed in the previous section because its definitions of agents and patients are based on fuzzy categorisation. It is, for instance, not clear why the specific criteria for agent- and patienthood are chosen over others, how they are assessed consistently cross-linguistically, nor how semantic participants with presumably equal status are treated (Haspelmath 2011a: 554ff.). The Comrian approach is not problematic per se, but the approach has not been adopted in the present study due to its restrictive nature in terms of verbal meaning. While this is not an issue for, e.g., alignment typology (in relation to which Haspelmath discusses S, A, P, T, and R in the first place), it will become evident in subsequent chapters that many examples present in the present study involve verbs that hardly qualify as prototypical transitive situations. Moreover, as demonstrated later, the abovementioned notions are not necessarily a prerequisite for voice definitions. In this study only two grammatical – or rather semantic – roles will be needed; a causer in the literal sense (i.e. a semantic participant causing another semantic participant to perform an action) and an agent defined minimally as the initiator of an action. While the latter definition might seem overly simplistic, the semantic role in question is only

relevant to the definitions of passives and antipassives for which the aforementioned definition seems to suffice (§2.2.2).

2.1.4 Active voice

The notion of voice is prevalent in the literature and the tradition of distinguishing between different kinds of voices can be traced to the grammatical traditions pertaining to Ancient Greek and Sanskrit (see, e.g., Kulikov 2010: 369; Zúñiga & Kittilä 2019: 1f.). Voice can essentially be perceived as a category (or "super-category;" Haspelmath & Müller-Bardey 2004: 1140) of one or more clausal structures defined according to pragmatic, semantic, and/or syntactic criteria. It is widely assumed that one voice is somehow more neutral and/or more frequent in discourse than other voices. This voice is traditionally called the active voice, but other denotations are becoming increasingly common in the literature as well, often characterised by the adjective "basic" (e.g. Comrie 1989; Mel'čuk 1993; Cooreman 1994; Dixon 2000; Dixon & Aikhenvald 2000; Malchukov 2015, 2016; Haspelmath & Hartmann 2015; i.a.), "unmarked" (e.g. Kazenin 2001a; Haspelmath & Müller-Bardey 2010; i.a.), or "neutral" (e.g. Kulikov 2010).

Despite its omnipresence in linguistics, the active voice is rarely defined nor explicitly discussed, but it is generally assumed to be a highly productive and non-restricted clause type which is more frequent and somehow less marked than others (e.g. Comrie 1988: 19ff.). While a definition like this is intuitively clear, it can be difficult to apply in practice. Firstly, for some languages it is difficult to argue that one clause type is more frequent than others. This is true for many languages with so-called "symmetrical voice" (Zúñiga & Kittilä 2019: 120ff.; §2.2.1). For instance, in the Malayo-Sumbawan language Madurese (PN) included in the language sample of the present study "the distribution of actor voice and object voice fluctuates between roughly 50/50 to a 40/60 split" (Davies 2010: 311; see also id.: 257). Secondly, in some languages the clause type intuitively assumed represent an active voice is not necessarily less marked in terms of morphosyntactic marking compared to other clause types (§3.2.1). Thirdly, it can be difficult to properly measure and compare productivity cross-linguistically because few descriptive grammars include detailed information on the matter. For these reasons, no attempt will here be made define an

active voice as a comparative concept, and the definitions proposed in the following sections will consequently not be based on such a concept. Instead, the definitions will be based on a comparison between any two clausal constructions that fulfill a number of criteria as specified later, and no construction will be required to be more neutral.

2.2 Voices redefined

As demonstrated in the preceding sections, the notions of an argument-adjunct distinction, transitivity, grammatical roles, and an active voice are surprisingly difficult to define as comparative concepts and they are consequently avoided in the present study. The definitions of the passive, antipassive, reflexive, reciprocal, anticausative, causative, and applicative voices presented in the following sections are instead based upon i) a comparison of two clausal constructions, ii) the number of semantic participants in the constructions, iii) the semantic roles of certain semantic participants in the constructions; and iv) the formal verbal marking of the constructions.

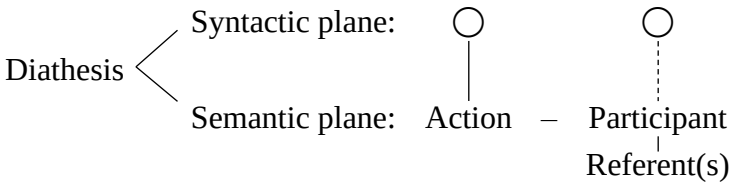
The various voice definitions have been formulated according to three precepts: i) they must be relevant and practical in relation to the main objectives of this study (§1.1); ii) they must adhere to the principles of cross-linguistic comparison (§1.3); and iii) they must conform as much as possible to the general linguistic understanding of the individual voices. The latter precept is considered necessary as it would be counterproductive to define any given voice in a manner that differs entirely from how it is generally understood. Finally, the definitions are based on as few criteria as possible to allow for maximum cross-linguistic diversity and because "comparative concepts based on fewer factors seem to have a greater chance of leading to deeper insights" (Haspelmath 2010a: 677).

2.2.1 Principles

As noted in the preceding section, the voice definitions presented in the following sections are all based on a comparison between two clausal constructions because it is difficult to argue that any given construction represents a passive, antipassive, reflexive, reciprocal, anticausative, or applicative voice if considered entirely in

isolation. For the purpose of the following discussions, a clausal construction will henceforth be called a DIATHESIS. The use of this term here is partly inspired by the terminology employed by the Leningrad-St. Petersburg Typology Group in which a "[d]iathesis is determined as a pattern of mapping of semantic arguments onto syntactic functions" (Kulikov 2010: 370). A similar definition of a diathesis has recently been employed by Zúñiga & Kittilä (2019: 4) as well. However, as will become evident in the following sections, the link between semantic participants and their syntactic functions is of little importance to the definitions of the present study for which reason the exact approach of the abovementioned group is not adopted. Instead, the term is here intended to be a neutral denotation for a clausal construction conceptualised by a semantic plane and a syntactic plane; see figure 1 below.

Figure 1. Semantic and syntactic model of a diathesis



The semantic plane features a semantic (non-state) action alongside one or more semantic participants. As the topic of this study is syncretic voice marking, it is naturally required that the semantic action is expressed syntactically on the syntactic plane. By contrast, the semantic participants can either be expressed syntactically on the syntactic plane or remain implicit and deductible from wider context. Furthermore, a semantic participant may have one or more semantic referents; illustratively, the semantic participant 'man' has one semantic referent (i.e. one man) while the semantic participant 'men' has multiple (i.e. *n* number of men). This distinction between semantic participants and their referents is relevant for the definitions of the reflexive and reciprocal voices (§2.2.3). Only two semantic roles need to be explicitly defined for the voice definitions presented in the following sections: CAUSER and AGENT. The former role is used in its literal sense and denotes a semantic participant causing another semantic participant to perform the action on the semantic plane. The essence of the latter role can be more difficult to capture (§2.1.3) but is here defined according to a single criterion: an agent is the semantic participant which initiates the action on

the semantic plane. As briefly mentioned in §2.1.3, this role is only relevant for the definitions of the passive and antipassive definitions in the next section for which the aforementioned definition seems to suffice.

The abstract interrelationship between two diatheses being compared to each other will henceforth be known as a DIATHETIC RELATION while the two diatheses themselves will be known arbitrarily as D_1 and D_2. To ensure meaningful comparison of two diatheses in a diathetic relation, it is required that the semantic actions in D_1 and D_2 have corresponding semantic meaning and share the same stem on the syntactic plane. A diathetic relation qualifies as a passive, antipassive, reflexive, reciprocal, anticausative, causative, or applicative VOICE RELATION if it complies with one of the respective voice definitions presented later (for an overview of these definitions, see §3.2.6). In a voice relation either D_1 or D_2 qualifies as a passive, antipassive, reflexive, reciprocal, anticausative, causative, or applicative VOICE, as further specified in the aforementioned definitions. In other words, a voice relation refers to a *specific kind* of diathetic relation relevant to the present study, and a voice refers to a *specific kind* of diathesis. In this study the term "voice" is therefore strictly used in reference to passives, antipassives, reflexives, reciprocals, anticausatives, causatives, and applicatives and not to other kinds of diatheses.

The definitions of the seven abovementioned voices are based on one of two types of diathetic relations: in one type D_1 and D_2 feature the exact same number of semantic participants, and in another type D_2 features exactly one semantic participant more than D_1. These two types are visualised in figure 2a-b below. The bidirectional arrow (↔) indicates that D_1 and D_2 are compared on par with each other, and neither is considered "derived." Both D_1 and D_2 are here represented by the semantic plane alone: V denotes a semantic action and P a semantic participant. Subscript *n* denotes a finite number of semantic participants. As will become evident in the following sections, the first type of diathetic relation (vid. fig. 2a) underlies the definitions of the passive and antipassive voices, while the second type of diathetic relation (vid. fig. 2b) underlies the definitions of the reflexive, reciprocal, causative, anticausative, and applicative voices.

Figure 2. Two types of diathetic relations

a. D_1 (V, P_n) ↔ D_2 (V, P_n)

b. D_1 (V, P_n) ↔ D_2 (V, P_{n+1})

A difference in the verbal marking between D_1 and D_2 in a voice relation constitutes VOICE MARKING and minimally consists of an affix which here also encompasses reduplication and any suprasegmental features. Observe that verbal marking which forms part of a language's formal agreement system will not be regarded as voice marking. This restriction is adopted to limit the scope of the study and because such marking by itself is not traditionally considered a defining characteristic of the voices of focus in this study. "Symmetrical voice" (Zúñiga & Kittilä 2019: 120ff.) is a good example of verbal marking of this kind, including direct-inverse marking and Austronesian alignment. Languages featuring such phenomena possess two (e.g. direct-inverse or Indonesian-type marking; Arka & Ross 2005: 7) or more (e.g. Philippine-type marking; ibid.) diatheses (i.e. clausal constructions) with roughly equal status, and the use of a given diathesis is essentially based on differing language-specific criteria related to semantic participants and their agreement.

Illustratively, in the language isolate Movima (SA) which is included in the language sample of the present study direct marking (i.e. *-na or <a>*) is employed "when two third-person participants are ranked equally in terms of discourse status" (Haude 2012: 265), while inverse marking (i.e. *-kay*) is "restricted to the situation in which the undergoer outranks the actor with regard to person and discourse prominence" (ibid.). Likewise, in Austronesian alignment specific voices are associated with certain syntactic marking patterns for semantic participants. For instance, in the Greater Central Philippine language Tagalog (PN) an actor is syntactically marked nominative and a patient genitive in the Actor Voice, while their case marking is swapped in the Patient Voice. In other voices both semantic participants are marked genitive, while a location and an instrument are marked nominative in the Locative Voice and the Instrumental Voice, respectively (Zúñiga & Kittilä 2019: 125ff.). The closely related language Cebuano (PN) included in the language sample of the present study is largely similar to Tagalog; as noted by Tanangkingsing (2009: 40), "through these voice forms we can generally predict the semantic role of the nominative argument."

Thus, symmetrical marking of the kind exemplified in the three languages above can be regarded as an integral part of the languages' formal agreement systems and will therefore not be treated as voice marking here. Nevertheless, this does not mean that languages with the aforementioned symmetrical marking do not feature any of the voices of focus in this study. On the contrary, the majority of, e.g., the Austronesian languages included in the language sample of the present study feature applicative, causative, and/or reflexive voices (vid. appendix B). For instance, in the Northern Luzon language Dupaningan Agta (PN) the prefix *i-* characterising the language-specific Theme Voice (C. Robinson 2011: 157ff.) can serve as voice marking in the applicative voice when the prefix is added onto verbs in the language-specific Locative Voice, e.g. *alap-an* 'to get sth.' ↔ *i-alap-an* 'to get sth. for sb.' (id.: 161ff.).

Finally, for a certain voice to be attested in a language, its voice marking must be productive. However, as already noted in §2.1.4, productivity is difficult to measure cross-linguistically. For the sake of consistency, voice marking is considered productive if it is attested with more than one verb in a given language. As a result, some cases of voice marking labelled unproductive in the literature are here considered productive. This broad inclusion is considered an advantage, however, as low-frequent voice can prove interesting in its own right, for instance from a diachronic perspective. Nevertheless, for the sake of transparency, syncretic voice marking labelled or described as unproductive for one or more voices in the literature is duly marked by an obelus (†) in appendix C.

2.2.2 Passives and antipassives

As noted in the preceding section, the passive and antipassive voice relations are characterised by two diatheses (D_1 and D_2) that both have the same number of semantic participants, as visualised in figure 2a on page 41 and reproduced below for the sake of convenience. This interdiathetic comparison serves as the foundation for the passive and antipassive definitions presented in this section and differentiates them from the reflexive, reciprocal, causative, anticausative, and applicative voice relations discussed in subsequent sections. The comparison in question also reflects passive and antipassive definitions in the literature in which a semantic participant is normally

described as being somehow demoted and potentially omitted syntactically, yet remains semantically implicit.

$$D_1 (V, P_n) \leftrightarrow D_2 (V, P_n)$$

In the present study a fundamental distinction is maintained between absolute passive and antipassive voices on the one hand, and non-absolute passive and antipassive voices on the other hand. The former type of passive voice is generally known as "agentless passive" in the literature (e.g. Dixon & Aikhenvald 2000: 7; Kulikov 2010: 374) but is here called absolute passive by analogy with the absolute antipassive voice (e.g. Haspelmath & Müller-Bardey 2004: 1131; Malchukov 2015: 98). The absolute (or agentless) passive and the absolute (or absolutive) antipassive voice relations basically involve one semantic participant which cannot be expressed syntactically, unlike the non-absolute passive and the non-absolute antipassive voice relations which involve semantic participants that can all be expressed syntactically, though one semantic participant is less likely to be so. The absolute passive and antipassive are here addressed first, while the non-absolute passive and antipassive are discussed further below. Accordingly, the absolute passive definition below establishes both the absolute passive voice relation and the absolute passive voice as comparative concepts (vid. def. 1), while the absolute antipassive definition establishes both the absolute antipassive voice relation and the absolute antipassive voice as comparative concepts (vid. def. 2).

Definition 1. Absolute passive definition

An ABSOLUTE PASSIVE VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the ABSOLUTE PASSIVE VOICE denotes D_2 in the said voice relation.

i) D_1 and D_2 feature the same number of semantic participants.
ii) One semantic participant in D_2 cannot be expressed syntactically.
iii) The abovementioned semantic participant is an agent.
iv) The verbs in D_1 and D_2 differ in terms of marking.

Definition 2. Absolute antipassive definition

An ABSOLUTE ANTIPASSIVE VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the ABSOLUTE ANTIPASSIVE VOICE denotes D_2 in the said voice relation.

i) D_1 and D_2 feature the same number of semantic participants.
ii) One semantic participant in D_2 cannot be expressed syntactically.
iii) The abovementioned semantic participant is *not* an agent.
iv) The verbs in D_1 and D_2 differ in terms of marking.

The definitions above are illustrated in practice below by examples of diathetic relations in the Finnic language Finnish (EA; 2↔3) and the Oceanic language Tolai (PN; 4↔5). In each diathetic relation D_1 (i.e. exx. 2, 4) and D_2 (i.e. exx. 3, 5) feature the same number of semantic participants (cf. the first criterion). Furthermore, one semantic participant in D_2 (i.e. the semantic participant eating the ice cream in ex. 3, and the semantic participant being hit in ex. 5) cannot be expressed syntactically (cf. the second criterion). Additionally, the diatheses in both diathetic relations differ in terms of verbal marking (i.e. *-tiin* in Finnish, *ki~* in Tolai; cf. the fourth criterion). Finally, the diathetic relation in Finnish qualifies as an absolute passive voice relation because the semantic participant eating ice cream is an agent, while the diathetic relation in Tolai qualifies as an absolute antipassive voice relation because the semantic participant being hit is not an agent (cf. the third criterion). According to the absolute passive definition (vid. def. 1), D_2 in the Finnish absolute passive voice relation represents an absolute passive voice; and according to the absolute antipassive definition (vid. def. 2), D_2 in the Tolai absolute antipassive voice relation represents an absolute antipassive voice.

Finnish (personal knowledge)

2. *poika* *söi* *jäätelö-n*
   boy.NOM eat.PST.3SG ice.cream-ACC
   'The boy ate the ice cream.'

3. *jäätelö* *syö-**tiin***
   ice.cream.NOM eat-PST.PASS
   'The ice cream was eaten.'

Tolai (Mosel 1991: 248)

4. *a* *vavina* *i* *kita* *ra* *bul*
   ART woman she hit ART child
   'The woman hit the child.'

5. *a* *vavina* *i* ***ki*~*kita***
   ART woman she ANTP~hit
   'The woman hit.'

In the Finnish and Tolai voice relations exemplified above the verb in D_2 features additional verbal marking compared to the verb in D_1. However, the absolute passive and antipassive definitions also encompass diathetic relations like the one illustrated for Modern Standard Arabic below (6↔7) which qualifies as an absolute passive voice relation. In this case there is clearly a difference in marking between the verbs in D_1 and D_2 (as required by the fourth criterion in the absolute passive and absolute antipassive definitions), even though the verb in D_2 does not feature additional verbal marking compared to the verb in D_1 nor vice versa (cf. *kataba* ↔ *kutiba*). A similar example of an absolute antipassive voice relation is provided for the Algonquian language Arapaho (NA) in (195-196) on page 121.

Modern Standard Arabic (Abu-Chacra 2007: 130)

6. *k**a**t**a**ba* *l-muʿallim-u* *l-kitāb-a*
   write.ACT.PST.3SG.M DEF-teacher.M-NOM DEF-book.M-ACC
   'The teacher wrote the book.'

7. *k**u**t**i**ba* *l-kitāb-u*
   write.PASS.PST.3SG.M DEF-book.M-NOM
   'The book was written.'

Next, the non-absolute passive definition below establishes the non-absolute passive voice relation and the non-absolute passive voice as comparative concepts (vid. def. 3), while the non-absolute antipassive definition establishes the non-absolute antipassive voice relation and the non-absolute antipassive voice as comparative concepts (vid. def. 4). These definitions share the first and third criteria with the absolute passive and antipassive definitions (vid. deff. 1-2) but differ with regard to the second and third criteria. Definitions 3 and 4 are based on the assumption that one

semantic participant in one diathesis is less likely to be expressed syntactically than others, as specified in the second criterion. This criterion reflects the demotion often associated with the passives and antipassives in the literature, as noted in the beginning of this section. The criterion even applies to languages in which semantic participants are commonly omitted for a variety of reasons; if need be, certain semantic participants are more likely to be expressed syntactically than others. Cases in which no semantic participant seems to be less likely expressed syntactically are simply excluded from the study. The definitions are addressed in more detail below.

Definition 3. Non-absolute passive definition

A NON-ABSOLUTE PASSIVE VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the NON-ABSOLUTE PASSIVE VOICE denotes D_2 in the said voice relation.

i) D_1 and D_2 feature the same number of semantic participants.
ii) One semantic participant in D_2 is less likely to be expressed syntactically than other semantic participants.
iii) The abovementioned semantic participant is an agent.
iv) The verb in D_2 has additional marking compared to the verb in D_1.

Definition 4. Non-absolute antipassive definition

A NON-ABSOLUTE ANTIPASSIVE VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the NON-ABSOLUTE ANTIPASSIVE VOICE denotes D_2 in the said voice relation.

i) D_1 and D_2 feature the same number of semantic participants.
ii) One semantic participant in D_2 is less likely to be expressed syntactically than other semantic participants.
iii) The abovementioned semantic participant is *not* an agent.
iv) The verb in D_2 has additional marking compared to the verb in D_1.

The definitions above are illustrated in practice below by examples of diathetic relations in the Central Cushitic language Khimt'anga (AF; 8↔9) and the Northern Chukotko-Kamchatkan language Chukchi (EA; 10↔11). In each diathetic relation D_1 (i.e. exx. 8, 9) and D_2 (i.e. exx. 10, 11) feature the same number of semantic

participants (cf. the first criterion). Furthermore, one semantic participant in D_2 (i.e. the semantic participant eating the bread in ex. 9, and the semantic participant being caught in ex. 11) is less likely to be expressed syntactically than other semantic participants (cf. the second criterion). Additionally, in both diathetic relations D_2 features additional verbal marking compared to D_1 (i.e. *-i͡ʃit* in Khimt'anga, *ine-* in Chukchi; cf. the fourth criterion). Finally, the diathetic relation in Khimt'anga qualifies as a non-absolute passive voice relation because the semantic participant eating the bread is an agent, while the diathetic relation in Chukchi qualifies as a non-absolute antipassive voice relation because the semantic participant being caught is not an agent (cf. the third criterion). According to the non-absolute passive definition (vid. def. 3), D_2 in the Khimt'anga non-absolute passive voice relation represents a non-absolute passive voice; and according to the non-absolute antipassive definition (vid. def. 4), D_2 in the Chukchi non-absolute antipassive voice relation represents a non-absolute antipassive voice.

Khimt'anga (Belay 2015: 235)

8. *ədʒɨr-d* *χabəʃə-d* *χʷ-Ø-u*
   man-DEF bread-DEF eat-3SG.M-PFV
   'The man ate the bread.'

9. *χabəʃə-d* [*ədʒɨr-iz*] *χʷ-**i͡ʃit**-Ø-u*
   bread-DEF man-INST eat-PASS-3SG.M-PFV
   'The bread was eaten [by the man].'

Chukchi (Polinsky 2017: 314)

10. *ʔətt-e* *melota-lɣən* *piri-nin*
    dog-ERG hare-ABS catch-AOR.3SG:3SG
    'The dog caught a/the hare.'

11. *ʔətt-ən* ***ine**-piri-ɣʔi* [*melot-etə*]
    dog-ABS ANTP-catch-AOR.3SG hare-DAT
    'The dog caught [a/the hare].'

Observe that the verb in D_2 is required to have additional marking compared to the verb in D_1 according to the fourth criterion in the definitions of non-absolute passive and antipassive voice relations (vid. deff. 3-4), unlike in the definitions of absolute

passive and antipassive voice relations (vid. deff. 1-2). This requirement ensures a successful identification of D_2 in non-absolute passive and antipassive voice relations in cases where two diatheses both feature a semantic participant which is less likely to be expressed syntactically. For example, although that which is eaten is expressed syntactically in the Khimt'anga diathesis in (8) above, it can alternatively be omitted depending on context (Belay 2015: 345). If the verbs in D_1 and D_2 were only required to differ in terms of verbal marking, the diathesis in (8) would qualify equally well as D_1 and D_2 (and so would the diathesis in ex. 9).

One consequence of the fourth criterion is that non-absolute passive and antipassive counterparts to the absolute passive and antipassive diathetic relations mentioned for Modern Standard Arabic and Arapaho further above are excluded by the definitions. Consider, for instance, the three diathetic relations in the Interior Salish language Nxa'amxcin (NA) below (12-14) in which neither D_1 nor D_2 features additional verbal marking. From a language-specific perspective, the "antipassive" suffix on the right side of the bidirectional arrow (i.e. *-m*) is simply in variation with a "transitive" suffix (e.g. *-stu*, *-nt*, and *-łt*) on the left side of the said arrow. The diathetic relations otherwise fulfill all criteria (but the fourth) in the non-absolute antipassive voice definition (vid. def. 4) *if* it is assumed that the diatheses featuring the suffix *-m* are identified as D_2. The closely related Central Salish language Musqueam features a very similar phenomenon (Suttles 2004).

Nxa'amxcin (Willett 2003)

12.	*ʔaw'tap-**stu**-*	'to follow sb.'	↔	*ʔaw'tap-**m**-*	'to follow [sb.]'	(id.: 103, 164)
13.	*p'iq-**nt**-*	'to cook sth.'	↔	*p'iq-**m**-*	'to cook [sth.]'	(id.: 164, 190)
14.	*wik-**łt**-*	'to see sth.'	↔	*wik-**m**-*	'to see [sth.]'	(id.: 103, 164)

It is difficult to establish a cross-linguistically comparable criterion according to which D_2 can be successfully identified in diathetic relations like those illustrated for Nxa'amxcin above. One solution would be to alter the fourth criterion of the non-absolute antipassive definition so that it requires only that the verbs in D_1 and D_2 differ in terms of verbal marking (as in the absolute passive and antipassive definitions) and then specify that D_1 represents an active voice unlike D_2. However, as already argued in §2.1.4, an active voice cannot be satisfactorily established as a comparative concept.

Instead, for the sake of consistency, the said phenomena in Nxa'amxcin and Musqueam are simply not recognised as proper non-absolute antipassives as they do not comply fully with the non-absolute antipassive definition presented in this section (vid. def. 4). However, the phenomena in the two languages is henceforth called as "antipassive-like" (and thus refers to the language-specific constructions in the respective languages) and will be mentioned a few times in subsequent chapters, although they are kept strictly separated from proper antipassives. No other languages in the language sample feature similar phenomena, and no corresponding "passive-like" phenomenon has been attested in the sample either.

As the definitions of both absolute and non-absolute passive and antipassive voice relations require that the verbal marking in D_1 and D_2 must differ somehow, "uncoded alternations" of various kinds described as passive or antipassive in the literature (e.g. Zúñiga & Kittilä 2019: 188ff.) are excluded from the present study. Thus, diathetic relations like those exemplified below for the Western Mande language Bambara (AF; 15↔16) and the Oceanic language East Uvean (PN; 17↔18) do *not* qualify as neither passive nor antipassive voice relations and will therefore not be discussed further in the present study.

Bambara (Creissels 2016: 112)

15. *wùlû* *má* *sògô* *dún*
    dog.DET NEG meat.DET eat
    'The dog did not eat the meat.'

16. *sògô* *má* *dún* [*wùlú* *fɛ̀*]
    meat.DET NEG eat dog.DET beside
    'The meat was not eaten [by the dog].'

East Uvean (Creissels 2016: 110)

17. *'e* *huo* *e* *Soane* *tana* *gāue'aga* *'ufi*
    NPST weed ERG Soane his field yam
    'Soane is weeding his yam field.'

18. *'e* *huo* *ia* *Soane*
    NPST weed ABS Soane
    'Soane is weeding.'

Furthermore, note that it is not specified how semantic participants ought to be marked morphosyntactically in the definitions of the passive and antipassive voices presented in this section. Such specifications are otherwise common in definitions of the said voices in the literature. For instance, it is commonly stated than an object or O/P becomes or behaves like a subject or S in passives, and that an A becomes or behaves like an S in antipassives (e.g. Dixon 2000: 32; Dixon & Aikhenvald 2000: 7ff.; Peterson 2007: 200f.; Kulikov 2010: 371, 380; Malchukov 2016: 412). Likewise, it is often specified that demoted agents in passives and demoted patients in antipassives are marked in some oblique fashion, if they are not omitted in the first place. As already argued in §2.1, these notions are difficult to establish as comparative concepts and often language-specific for which reason they are avoided in the present study. Furthermore, languages appear to differ greatly in terms of how they mark semantic participants in passives and antipassives, and it is therefore hardly feasible to include one kind of marking in definitions thereof but exclude other kinds.

Illustratively, consider the diathetic relations exemplified below in the Uto-Aztecan language Ute (NA; 19↔20) and the Southeastern Pama-Nyungan language Bandjalang (AU; 21↔22). In language-specific terms, in Ute the object 'the meat' marked by the oblique case in the active voice (19) does not become nor behave like a subject in the passive voice but retains its oblique marking (20).[2] Likewise, in Bandjalang the demoted object 'water' in (22) retains its absolutive case marking in the antipassive voice (21). Diathetic relations like these are often regarded as problematic in relation to existing passive and antipassive definitions due to their argument marking which is perceived as being odd. Nevertheless, the diathetic relations in question comply perfectly with the passive and antipassive definitions presented in this section and accordingly qualify as passive and antipassive voice relations, respectively. Examples similar to that in Ute can be found in, e.g., the language isolate Chabu (AF; Kibebe 2015: 282ff.), and examples similar to that in Bandjalang can be found in, e.g., the Katukinan language Katukina-Kanamari (SA; dos

[2] Note that the language-specific distinction between the nominative and oblique cases in Ute relies on the voicing of the last vowel of a noun: it is devoiced in the nominative case and voiced in the oblique case (Givón 2011: 93f.).

Anjos 2011: 350). Another interesting example comes from the Samoyedic language Tundra Nenets (EA) in which – in language-specific terms – the passive agent is marked by the nominative case if it is a pronoun, exactly like the passive subject (Nikolaeva 2014: 240f.; personal correspondence on June 27th, 2019).

Ute (Givón 2011: 249f.)

19. *ta'wachi* *tɯkuavi* *tɯka-qha*
    man.NOM meat.OBL eat-PST
    'The man ate the meat.'

20. *tɯkuavi* *tɯka-**ta**-qa*
    meat.OBL eat-PASS-PST
    'The meat was eaten.'

Bandjalang (Austin 1982: 38; via Kittilä 2002: 201; 2015: 347)

21. *ngaju* *juga-ala* *nyabay*
    1SG.ERG drink-PRS water.ABS
    'I am drinking water.'

22. *ngay* *juga-**le**-la* (*nyabay*)
    1SG.NOM drink-ANTP-PRS water.ABS
    'I am drinking (water) repeatedly.'

Finally, observe that in the remainder of this study absolute and non-absolute passives are mostly treated collectively as passive, and absolute and non-absolute antipassives as antipassive. Thus, for the sake of transparency, the passive voice relation and the passive voice as well as the antipassive voice relation and the antipassive voice are established as proper comparative concepts below (vid. def. 5 and 6, respectively).

Definition 5. Passive definition

A PASSIVE VOICE RELATION denotes an absolute passive voice relation *or* a non-absolute passive voice relation, while a PASSIVE VOICE denotes an absolute passive voice *or* a non-absolute passive voice.

Definition 6. Antipassive definition

An ANTIPASSIVE VOICE RELATION denotes an absolute antipassive voice relation *or* a non-absolute antipassive voice relation, while an ANTIPASSIVE VOICE denotes an absolute antipassive voice *or* a non-absolute antipassive voice.

2.2.3 Reflexives and reciprocals

Unlike the passive and antipassive voice relations discussed in the preceding section, the reflexive and reciprocal voice relations are characterised by one diathesis (D_2) featuring one semantic participant more than another diathesis (D_1). This interdiathetic comparison has been visualised on page 41 in figure 2b which is reproduced below, and essentially mirrors the contrast found in the literature on reflexivity and reciprocity between action upon self/selves or each other on the one hand, and action upon another semantic participant on the other hand.

$$D_1\ (V, P_n) \leftrightarrow D_2\ (V, P_{n+1})$$

The reflexive definition presented below establishes both the reflexive voice relation and the reflexive voice as comparative concepts (vid. def. 7), while the reciprocal definition establishes both the reciprocal voice relation and the reciprocal voice as comparative concepts (vid. def. 8). The definitions are each based on four criteria. The first criterion reflects the interdiathetic comparison described above, and is also shared by the causative, anticausative, and applicative definitions presented in the following sections. The second and third criteria serve to differentiate the reflexive and reciprocal voice relations from the aforementioned voice relations. In turn, the fourth criterion serves to differentiate the reflexive and reciprocal voice relations from each other. The second, third, and fourth criteria are further discussed and illustrated below. For the sake of clarity, it shall be mentioned that the fourth criterion in the reflexive definition covers both so-called distributive and collective reflexivity, in other words it is not relevant whether or not the referents are perceived as individuals or groups (Zúñiga & Kittilä 2019: 159ff.). Likewise, the fourth criterion in the reciprocal definition covers most "semantic configurations" of reciprocity, including so-called "strong," "pair," "melee," "radial," "ring," and "chain" reciprocity (Majid et al. 2011, Evans et al. 2011), and no distinction is made between these configurations.

Other functions sometimes associated with reciprocity in one way or another, e.g. comitativity, sociativity, collectivity, etc. (e.g. Nedjalkov [ed.] 2007a), are not covered by the reciprocal definition here – but are of interest to the diachrony of reciprocal syncretism as further discussed in §7.2.

Definition 7. Reflexive definition

A REFLEXIVE VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the REFLEXIVE VOICE denotes D_1 in the said voice relation.

i) D_2 features one semantic participant more than D_1.
ii) The additional semantic participant in D_2 is not a causer.
iii) The verb in D_1 has additional marking compared to the verb in D_2.
iv) One or more referents of one semantic participant in D_1 act(s) upon *self/selves*.

Definition 8. Reciprocal definition

A RECIPROCAL VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the RECIPROCAL VOICE denotes D_1 in the said voice relation.

i) D_2 features one semantic participant more than D_1.
ii) The additional semantic participant in D_2 is not a causer.
iii) The verb in D_1 has additional marking compared to the verb in D_2.
iv) Two or more referents of one semantic participant in D_1 act upon *each other*.

The reflexive and reciprocal voice relations differ from the causative and anticausative voice relations with regard to the second criterion. In the causative and anticausative voice relations the additional semantic participant in D_2 is a causer (§2.2.1), unlike in the reflexive and reciprocal voice relations. Illustratively, consider the reflexive voice relation below in the Hokan language Chimariko (NA; 23↔24) as well as the causative voice relation in the Barbacoan language Awa Pit (SA; 25↔26). In the Chimariko reflexive voice relation the additional semantic participant in D_2 (i.e. 'this person' in ex. 24) is *not* a causer unlike the additional semantic participant in D_2 in the Awa Pit causative voice relation (i.e. 'Carmen' in ex. 26). A reciprocal voice relation is illustrated further below.

Chimariko (Jany 2009: 121)

23. *y-ekʰo-**yeʔw**-xana-t* *noʔot*
    1SG.A-kill-REFL-FUT-ASP 1SG
    'I am going to kill myself.

24. *noʔot* *pʰaʔmot* *č'imar-ot* *y-ekʰo-xana-t*
    1SG DET person-DEF 1SG.A-kill-FUT-ASP
    'I am going to kill this person.'

Awa Pit (Curnow 1997: 159f.)

25. *Jaime* *maza* *atal* *pay-ti-zi*
    Jaime one chicken buy-PST-NONLOCUT
    'Jaime bought a chicken.'

26. *Carmen=na* *Jaime=ta* *maza* *atal* *pay-**nin**-ti-zi*
    Carmen=TOP Jaime=ACC one chicken buy-CAUS-PST-NONLOCUT
    'Carmen caused Jaime to buy a chicken.'

The applicative voice relation is similar to the reflexive and reciprocal voice relations in terms of the second criterion. Consider, for instance, the applicative voice relation in the Muskogean language Creek (NA) below (27-28) in which the additional semantic participant in D_2 (i.e. 'pen' in ex. 28) is used to realise the action of writing, supplying ink, but does not cause 'Bill' to perform the action itself. The reflexive and reciprocal voice relations are instead differentiated from the applicative voice relation by the third criterion in their definitions. In the applicative voice relation, the verb in D_2 has additional marking compared to the verb in D_1 (cf. Creek *is-* in ex. 28), unlike in the reflexive and reciprocal voice relations in which the opposite is true (cf. Chimariko *-yeʔw* in ex. 23).

Creek (Martin 2000: 392)

27. *Bill* *có·ka-n* *hó·cceyc-ís*
    Bill letter-OBL write.ASP-IND
    'Bill is writing a letter.'

28. *Bill* *isho·ccéycka* *có·ka-n* ***is**-hó·cceyc-ís*
    Bill pen letter-OBL APPL-write.ASP-IND
    'Bill is writing a letter with a pen.'

The fourth criterion in the reflexive and reciprocal definitions is used to distinguish the reflexive and reciprocal voice relations from each other. Illustratively, compare the reflexive voice relation in Chimariko above (23↔24) to the reciprocal voice relation in the Oceanic language Nêlêmwa (PN) below (29↔30). The referent of the semantic participant 'I' acts upon itself in D_1 in the Chimariko reflexive voice (23), while the referents of the semantic participant 'those women' are watching each other in D_1 in the Nêlêmwa reciprocal voice (29).

Nêlêmwa (Bril 2007: 1490)

29. *hli* ***pe****-alu-****i*** *hliili* *thaamwa*
    3DU RECP-stare-RECP those.ANAPH woman
    'Those women are watching each other.'

30. *hli* *alu* *i* *na* *a* *hliili* *thaamwa*
    3DU stare CONN 1SG AG those.ANAPH woman
    'Those women are watching me.'

As a consequence of the third criterion in the reflexive and reciprocal definitions presented in this section, both periphrastic and "uncoded" reflexives and reciprocals of various kinds (e.g. Zúñiga & Kittilä 2019: 151ff., 195ff.) are excluded from the present study. Thus, diathetic relations like those exemplified below for the Lowland East Cushitic language Konso (AF; 31↔32) and the Finnic language Tver Karelian (EA; 33↔34) in which reflexivity and reciprocity is marked solely by pronouns do *not* qualify as neither reflexive nor reciprocal voices as they feature no verbal voice marking. However, observe that diathetic relations which feature periphrastic marking in addition to voice marking do naturally comply with the definitions and are thus included in the study (e.g. §3.2.1).

Konso (Orkaydo 2013)

31. *anti-ʔ* *isi* *in=ʃaɠʔay*
    1SG-NOM self 1=wash-PFV.3.M
    'I washed myself.' (id.: 134)

32. *anti-ʔ* *toma-siʔ* *kutt-a* *in=ʃaɠʔay*
    1SG-NOM bowl-DEF.M/F be.big-M/F 1=wash-PFV.3.M
    'I washed the big bowl.' (id.: 51)

Tver Karelian (own fieldwork)

33. *hüö* *anne-ttih* *toine toize-lla* *dengua*
    3PL give-PST.3PL each other-ADE money.PART
    'They gave each other money.'

34. *hüö* *anne-ttih* *lapš-i-lla* *dengua*
    3PL give-PST.3PL child-PL-ADE money.PART
    'They gave the children money.'

As noted in the previous section, passive and antipassive definitions in the literature commonly specify how certain semantic participants ought to be marked morphosyntactically, and this is also true for reflexive and reciprocal definitions (e.g. Dixon & Aikhenvald 2000: 11; Mel'čuk 1993: 16; 2006: 188; Givón 2001b: 95ff.; Kulikov 2010: 384f.). However, in comparison with the passive and antipassive voices, there seems to be less cross-linguistic diversity concerning such marking in the reflexive and reciprocal voices. In any case, as demonstrated in this section such specifications are not needed to define reflexives and reciprocals as comparative concepts anyway.

2.2.4 Causatives and anticausatives

The causative and anticausative voice relations are characterised by one diathesis (D_2) featuring one semantic participant more than another diathesis (D_1), and in this respect the relations in question bear resemblance to the reflexive and reciprocal voice relations described in the previous section. This interdiathetic comparison has already been visualised on page 41 in figure 2b reproduced below, and serves as the foundation for the causative and anticausative definitions presented in this section. The interdiathetic comparison complies with the general understanding of both causativity and anticausativity in the literature: the former phenomenon is often believed to add a semantic participant, a causer, into a situation (e.g. Mel'čuk 1993: 11; Dixon 2000: 30ff.; Dixon & Aikhenvald 2000: 13; Haspelmath & Müller-Bardey 2004: 1136f.; Kulikov 2010: 386; Malchukov 2015: 96, 122; 2016: 412), while the latter is believed to remove a causer from a situation (e.g. Mel'čuk 1993: 11; Dixon & Aikhenvald

2000: 7; Haspelmath & Müller-Bardey 2004: 1132; Kulikov 2010: 392; Malchukov 2015: 90, 96f.).

$$D_1 (V, P_n) \leftrightarrow D_2 (V, P_{n+1})$$

The causative definition presented below establishes both the causative voice relation and the causative voice as comparative concepts (vid. def. 9), while the anticausative definition establishes both the anticausative voice relation and the anticausative voice as comparative concepts (vid. def. 10). The definitions are each based on three criteria, of which the first criterion is also shared by the reflexive, reciprocal, and applicative definitions. In turn, the second criterion serves to differentiate the causative and anticausative voice relations from the aforementioned three voice relations, as already illustrated in the previous section. Thus, the first and second criteria are the same in both the causative and anticausative definitions, and the voice relations are ultimately differentiated by the third criterion.

Definition 9. Causative definition

A CAUSATIVE VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the CAUSATIVE VOICE denotes D_2 in the said voice relation.

i) D_2 features one semantic participant more than D_1.
ii) The additional semantic participant in D_2 is a causer.
iii) The verb in D_2 has additional marking compared to the verb in D_1.

Definition 10. Anticausative definition

An ANTICAUSATIVE VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the ANTICAUSATIVE VOICE denotes D_1 in the said voice relation.

i) D_2 features one semantic participant more than D_1.
ii) The additional semantic participant in D_2 is a causer.
iii) The verb in D_1 has additional marking compared to the verb in D_2.

As evident in the definitions above, the causative and anticausative voice relations are distinguished from each other by the third criterion pertaining to verbal marking alone. Consider, for example, the diathetic relations exemplified below from the Huitotoan language Bora (SA; 35↔36) and the Mon-Khmer language Kammu (EA; 37↔38). In the Bora diathetic relation D_2 features additional marking compared to D1 (i.e. *-tsʰó* in ex. 36) and thus qualifies as a causative voice relation. By contrast, in the Kammu diathetic relation D_1 features additional marking compared to D_2 (i.e. *hm-* in ex. 37) and thus qualifies as an anticausative voice relation. According to the causative definition (vid. def. 9), D_2 in the Bora causative voice relation represents a causative voice; and according to the anticausative definition (vid. def. 10), D_1 in the Kammu anticausative voice relation represents an anticausative voice. Similar criteria are found in many existing definitions of the causative and anticausative voices. For example, Kulikov (2001: 888) argues that "causatives sensu stricto" are "formally more complex than their non-causative counterparts" while anticausatives are "morphologically more complex than the causative."

Bora (Thiesen & Weber 2012: 144)

35. *ó tsɨ̀ːnɛ́-ʔì*
    I run-CL
    'I ran.'

36. *òːʔíːpʲɛ́ ò-kʰɛ̀ tsɨ́ːnɛ̀-**tsʰó**-ʔì*
    dog-SG.M I-OBJ.ANIM run-CAUS-CL
    'The dog made me run.'

Kammu (Svantesson 1983: 111; via Zúñiga & Kittilä 2019: 49)

37. *tóʔ **hm**-pɨr*
    table ANTC-shake
    'The table is shaking.'

38. *ʔòʔ pɨr tóʔ*
    I shake table
    'I shake the table.'

While the diathesis characterised by additional verbal marking can be readily identified in most languages (cf. Bora and Kammu above), this can prove difficult in

some languages. Consider, for instance, the four diathetic relations in the Tibeto-Burman language Northern Pumi (EA) below (39-42). It is clear that the verbal marking in D_1 in each of these diathetic relations is characterised by an initial non-aspirated voiced consonant (i.e. *b-*, *dz-*, *d-*, *ɖ-*), while the verbal marking in D_2 is characterised by an initial aspirated voiceless counterpart (i.e. *pʰ-*, *tsʰ-*, *tʰ-*, *ʈʰ-*). Nevertheless, it can hardly be argued that the verb in either diathesis has additional marking. One solution would be to simply exclude such diathetic relations. This would be in line with, e.g., Kulikov's (2010) definitions cited above, but would also lead to the inevitable loss of diversity. Another solution would be to treat D_1 and D_2 indiscriminately as anticausative and causative, respectively. However, this would result in diatheses like the Bora diathesis in (35) above being labelled anticausative and diatheses like the Kammu diathesis in (38) being labelled causative. While this is a cross-linguistically applicable solution, it contrasts with the general understanding of anticausativity and causativity in the linguistic literature. A third solution, adopted in the present study, is to treat diathetic relations like the ones illustrated in Northern Pumi as indeterminate causative-anticausative. This kind of voice relation is described and explicitly defined below.

Northern Pumi (Daudey 2014: 295)

39.	***bî***	'to fall over'	↔	***pʰî***	'to push sth. over'
40.	***dz****ǎŋ*	'to be clogged up'	↔	***tsʰ****ǎŋ*	'to clog sth. up'
41.	***d****ǒŋ*	'to be dammed up'	↔	***tʰ****ǒŋ*	'to dam sth. up'
42.	***ɖ****wě*	'to break'	↔	***ʈʰ****wě*	'to break sth.'

The indeterminate causative-anticausative definition provided below establishes the causative-anticausative voice relation as a comparative concept (vid. def. 11). This definition is identical to the causative (vid. def. 9) and anticausative definitions (vid. def. 10) already presented in the beginning of this section in terms of the first and second criteria but differs regarding the third criterion. In specifically this kind of voice relation, D_1 can invariably be said to be anticausative and D_2 causative. Accordingly, in the Northern Pumi diathetic relations above (39-42) the diatheses on the left side of the bidirectional arrow (i.e. D_1) are treated as anticausative, while the diatheses on the right side of the said arrow (i.e. D_2) are treated as causative. Thus, the

anticausative voice in this study can henceforth refer to D_1 in the anticausative voice relation *or* the indeterminate causative-anticausative voice relation, while the causative voice can refer to D_2 in the causative voice relation *or* the indeterminate causative-anticausative voice relation. No distinction is made been the two respective definitions of the anticausative voice nor between the two respective definitions of the causative voice.

Definition 11. Indeterminate causative-anticausative definition

An INDETERMINATE CAUSATIVE-ANTICAUSATIVE VOICE RELATION denotes the interrelationship between two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the ANTICAUSATIVE VOICE denotes D_1 and the CAUSATIVE VOICE denotes D_2 in the said voice relation.

i) D_2 features one semantic participant more than D_1.
ii) The additional semantic participant in D_2 is a causer.
iii) The verbs in D_1 and D_2 differ in terms of verbal marking but neither D_1 nor D_2 has additional verbal marking compared to each other.

Evidently, the causative, anticausative, and indeterminate causative-anticausative definitions presented in this section all entail a difference in verbal marking between the verbs in D_1 and D_2. This ensures that "uncoded alternations" (e.g. Zúñiga & Kittilä 2019: 181ff.) like the diathetic relation in the Berber language Ghomara below (43↔44) are excluded from the present study.

Ghomara (Mourigh 2015: 317)

43. *lkas* *i-ṛeẓ*
glass 3SG.M-break.PFV
'The glass is broken.'

44. *argaz=ahen* *i-ṛeẓ* *lkas*
man=SG.ANAPH 3SG.M-break.PFV glass
'The man broke the glass.'

Furthermore, note that the causative, anticausative, and indeterminate causative-anticausative definitions do not address nor specify the morphosyntactic marking of semantic participants, unlike many existing causative and anticausative definitions in the literature. For instance, it is often specified that the causer in the causative voice

is or becomes or behaves like a subject or A (Dixon 2000: 31; Dixon & Aikhenvald 2000: 13; Haspelmath & Müller-Bardey 2004: 1137; Kulikov 2010: 386; Malchukov 2015: 122; 2016: 412). Likewise, it is widely stated that the single participant of an anticausative voice is or behaves like a subject or S (Kazenin 1994: 144; Dixon & Aikhenvald 2000: 7; Haspelmath & Müller-Bardey 2004: 1132). However, as already noted in the preceding two sections, notions and specifications like these are avoided in the present study. Furthermore, there seems to be considerable cross-linguistic variation with regard to the morphosyntactic marking of non-causing semantic participants in causatives (see, e.g., Dixon 2000: 45ff.), and it can therefore be difficult to justify that one kind of marking is included in their definition but other kinds excluded; this issue is less pronounced for anticausatives. Consider, for instance, the Bora causative voice relation already presented further above (35↔36) in which causees are generally marked like a direct object from a language-specific perspective. By contrast, in the language isolate Nivkh (EA) causees can optionally be marked by a suffix *-ax* specifically dedicated to this function (45↔46).

Nivkh (Nedjalkov et al. 1995: 78)

45. *ōla* *vi-d'*
    child go-FIN
    'The child went.'

46. *ətək* *ōla(-ax)* *vi-**gu**-d'*
    father child(-CAUSEE) go-CAUS-FIN
    'Father made/let the child go.'

Finally, it is worth noting that causatives differ considerably both within and across languages regarding the more precise semantic nature of the causation they denote; indeed, some languages feature two or more different types of causative marking. Dixon (2000: 62) lists nine semantic parameters according to which two or more causative may be differentiated: i) state/action, ii) transitivity, iii) control, iv) volition, v) affectedness, vi) directness, vii) intention, viii) naturalness, and ix) involvement. The sixth parameter is particularly prominent in the literature, and a fundamental distinction is often simply made between "direct causatives" and "indirect causatives" (e.g. Comrie 1989: 171; Kulikov 2001: 892; Shibatani & Pardeshi 2002; Zúñiga & Kittilä 2019: 34ff.). According to Haspelmath & Müller-Bardey (2004), in direct

causatives “the causer actively participates in the action, acting on the causee (in order to get the content of the base verb realized), which will imply some sort of coercion in case the causee is animate,” while in indirect causatives “the causer is conceived of as a mere instigator or distant cause of the realization of the verb content” (id.: 1138).

Unfortunately, many of the descriptive grammars covering the languages included in the language sample of the present study do not explore differences in causation in detail. Consequently, it has not been possible to obtain enough relevant and cross-linguistically comparable data on the languages to draw any conclusions about cross-linguistic differences regarding causation in relation to voice syncretism, and the said differences are therefore largely ignored in this study. Instead, causatives are treated on par with each other regardless of the semantic nature of their causation.

2.2.5 Applicatives

Like the reflexive, reciprocal, causative, and anticausative voice relations discussed in the preceding two sections, the applicative voice relation is characterised by one diathesis (D_2) featuring one semantic participant more than another diathesis (D_1), as visualised in figure 2b; here reproduced below for convenience. This interdiathetic comparison serves as the foundation for the applicative definition presented in this section and complies with the general understanding of applicativity as involving an additional semantic participant being added to a situation (e.g. Kazenin 1994: 144f.; Dixon 2000: 31; Dixon & Aikhenvald 2000: 13f.; Kulikov 2010: 389; Malchukov 2015: 90, 96; 2016: 413; Zúñiga & Kittilä 2019: 47).

$$D_1\ (V, P_n) \leftrightarrow D_2\ (V, P_{n+1})$$

The applicative definition presented below establishes both the applicative voice relation and the applicative voice as comparative concepts (vid. def. 12). The definition is based on three criteria. The first criterion reflects the interdiathetic comparison described and visualised above, while the second and third criteria serve to differentiate the applicative voice relation from the reflexive, reciprocal, causative, and anticausative voice relations, as already illustrated in §2.2.3.

Definition 12. Applicative definition

An APPLICATIVE VOICE RELATION denotes a diathetic relation involving two diatheses, D_1 and D_2, if a comparison between these diatheses fulfills the criteria below; while the APPLICATIVE VOICE denotes D_2 in the said voice relation.

i) D_2 features one semantic participant more than D_1.
ii) The additional semantic participant in D_2 is not a causer.
iii) The verb in D_2 has additional marking compared to the verb in D_1.

An applicative voice relation has already been illustrated for the Muskogean language Creek (NA; 27↔28) on page 54 but for the sake of illustration in this section, another applicative voice relation is exemplified in the South Guaicuruan Pilagá (SA) below (47↔48). In this Pilagá voice relation D_2 features an additional semantic participant which is not a causer (i.e. 'the woman' in ex. 48; cf. the first and second criteria) in addition to additional marking (i.e. *-lege*) not found in D_1 (cf. the third criterion). Finally, in accordance with the applicative definition (vid. def. 12), D_2 represents an applicative voice.

Pilagá (Vidal 2001: 318)

47. *d-asot*
    3SG-dance
    'S/he dances.'

48. *d-asot-e-**lege*** *hada'* *yawo*
    3SG-dance-EP-APPL DEM.F woman
    'S/he dances for the woman.'

The third criterion entailing a difference in verbal marking between the two diatheses in the applicative voice relation ensures that various periphrastic constructions do not qualify as applicative voice. Consider, for instance, the examples from the Central Pama-Nyungan language Diyari below (49-51); for very similar examples from the related Northern Pama-Nyungan language Yidiny, see Dixon (1977: 109). The diatheses in (50) and (51) both feature one semantic participant more than the diathesis in (49), but only the diatheses in (49) and (51) differ in terms of diathetic marking (i.e. *-lka*) and thereby qualify as an applicative voice relation. If no difference in verbal marking were required, the diathetic relation (49↔50) would also

qualify as applicative voice; a result that does not reflect the general understanding of applicativity in the literature.

Diyari (Austin 2005: 4f.; see also Kittilä 2002: 264)

49. *karna* *wapa-yi*
man.ABS go-PRS
'The man is going.'

50. *karna-li* *wapa-yi* *wilha-nhi*
man-ERG go-PRS woman-LOC
'The man is going with the woman.'

51. *karna-li* *wilha* *wapa-**lka**-yi*
man-ERG woman.ABS go-APPL-PRS
'The man is going with the woman.'

Some applicative definitions in the literature explicitly declare that the additional semantic participant found in D_2 but not in D_1 in an applicative voice relation – henceforth called the APPLICATIVE PARTICIPANT – reflects some kind of peripheral semantic participant in another diathesis. For instance, Dixon & Aikhenvald (2000: 13) claim that in the process of applicativisation a "peripheral argument (which could be explicitly stated in the underlying intransitive) is taken into the core" (see also Dixon 2000: 32), and Kulikov (2010: 389) notes that in applicatives "[t]he Direct Object may denote an entirely new participant in the situation, or it can be promoted from the periphery of the syntactic structure." In a similar manner, Zúñiga & Kittilä (2019: 53) argue that in the applicative voice the "primary/direct object corresponds to an adjunct or non-core argument in the non-applicative voice, or to a participant that is introduced to the clause as primary/direct object." In some languages this does indeed seem to be the case; in the Diyari examples above, for instance, the semantic participants 'the woman' in (50) and (51) appear to reflect each other in terms of meaning and function.

Nevertheless, as discussed in §2.1.1, the distinction between arguments and adjuncts (or core and periphery) is not applicable cross-linguistically. Moreover, in some languages there is no alternative to the use of an applicative voice for a certain function (or various functions), in which case the applicative participant cannot be

considered a reflection of any other semantic participant. Illustratively, in the Bantu language (ci)Lubà (AF) the applicative voice must be employed when one wants to express a beneficiary or a recipient (de Kind & Bostoen 2012: 104f., 107, 116). Consider the Lubà applicative voice relation (52↔53) below in which the beneficiary 'the mother' in (53) cannot be replaced by, e.g., a prepositional phrase with *bwà* 'for' (e.g. **bwà maamù*) nor be expressed in any other way. Creissels (2016: 85) observes that such "obligatory applicatives are particularly common among the languages of Subsaharan Africa." In contrast, applicatives like the one discussed for Diyari (49, 51) above can be characterised as optional; this distinction between optional and obligatory applicatives is also discussed at some length by Peterson (2007: 45ff.). The applicative definition presented in this section encompasses both optional and obligatory applicatives and does not make any distinction between them.

Lubà (de Kind & Bostoen 2012: 103)

52. *ba-àna* *bà-di* *ù-ambul-a* *mi-kàndà*
    CL2-child CL2-be CL1-carry-FIN CL4-book
    'The children are carrying the books.'

53. *ba-àna* *bà-di* *bà-ambul-**il**-a* *maamù* *mi-kàndà*
    CL2-child CL2-be CL2-carry-APPL-FIN mother CL4-book
    'The children are carrying the books for the mother.'

Furthermore, note that the applicative definition in this study does not address nor specify the morphosyntactic marking of semantic participants, unlike many existing definitions. For instance, it is commonly stated that an applicative participant is treated like a P or that an S becomes A or that a subject or an A remains unchanged in the process of applicativisation (e.g. Dixon 2000: 31; Dixon & Aikhenvald 2000: 13f.; Malchukov 2016: 412f; Zúñiga & Kittilä 2019: 53). Nevertheless, as already mentioned repeatedly in the preceding sections, criteria like these are entirely avoided in the present study. Moreover, the morphosyntactic marking of the said roles differ greatly cross-linguistically, and it would be difficult to argue for one kind of marking being included in a definition but other kinds excluded. Zúñiga & Kittilä (2019: 63) highlight this diversity and remark that "[m]ost formal variation with applicatives

stems from the fact that not all [applicative participants] acquire all properties associated with direct/primary objects" (cf. Beck 2009).

Illustratively, consider the diathetic relation in the Japonic language Irabu (EA) below (54↔55). In this diathetic relation 'rain' falls in both D_1 (i.e. ex. 54) and D_2 (i.e. ex. 55) yet is not treated like a subject from a language-specific perspective in the latter diathesis but rather like an adjunct, while the semantic participant being detrimentally affected by the falling 'I' is treated like a subject and not like a direct object – as otherwise expected in many existing applicative definitions. Kishimoto et al. (2014: 776) provide a very similar example from the related language Japanese in relation to which this type of constructions is generally called "adversative" or "adversative passive" (see also, e.g., Zúñiga & Kittilä 2019: 76ff., 244). However, the diathetic relation in Irabu complies well with the applicative definition presented in this section and therefore qualifies as an applicative voice relation and is treated accordingly. Note that the verbal stem in both (54) and (55) is the same (§4.4.1).

Irabu (Shimoji 2008: 495)

54. *ami=nu=du* *fïï*
rain=NOM=FOC fall
'Rain falls.'

55. *ba=a* *ami=n=du* *ff-**ai**-r*
1SG=TOP rain=DAT=FOC fall-APPL-NPST
'I am bothered by rain (that) falls.' (i.e. 'Rain falls to my detriment.')

Finally, it is worth observing that applicatives are functionally heterogeneous, as suggested by the various applicative examples above, and tend to be grouped according to the semantic nature of their applicative participant. In a typological study of applicatives in 100 languages, Peterson (2007: 202f.) observes that the most common semantic functions of the applicative participant are benefactive or malefactive, comitative, locative, and instrumental. A benefactive function of the applicative participant is evident in the applicative voices in Pilagá (48) and Lubà (53), a malefactive function in the applicative voice in Irabu (55), and a comitative function in the applicative voice in Diyari (51). Another common function of applicative participants is variously characterised as dative, goal, or directive (see, e.g.,

Haspelmath & Müller-Bardey 2004: 1135; Peterson 2007: 187) and basically denotes that an action is somehow directed towards the applicative participant. Less common functions exist as well. For instance, the Skou language Barupu (PN) features a caritive/privative applicative in which an action is performed without the applicative participant (Corris 2005: 258f.); and the Lower Sepik language Yimas (PN) possess visual applicatives indicating that an action is performed "while carefully watching another animate participant," i.e. the applicative participant (Foley 1991: 315).

The abovementioned differences in the nature of the applicative participant are interesting in their own right, but many of the descriptive grammars covering languages in the sample of the present study do not explore the functional extents of applicatives in detail. It has therefore proven difficult to obtain sufficient relevant and cross-linguistically comparable data on the languages to allow for any conclusive statements to be made about the semantic function(s) of the applicative participant in relation to voice syncretism. Consequently, the said differences are largely ignored in this study and applicatives are treated on par with each other regardless of the semantic function of their applicative participants. This is also the reason why the applicative definition presented in this section (vid. def. 12 p. 63) does not explicitly mention the applicative participant.

2.2.6 Overview

Twelve voice definitions have been presented in the preceding four sections, and an list of these definitions are provided in table 3 below alongside cross-references to the pages on which they are defined. As already mentioned in §2.2.2, the absolute passive and non-absolute passive voices are generally treated collectively as passive, and the absolute antipassive and non-absolute antipassive voices collectively as antipassive. Likewise, as noted in §2.2.4, the causative and anticausative voices in the indeterminate causative-anticausative voice relation are treated indiscriminately from the causative and anticausative voices in the causative and anticausative voice relations, respectively.

Table 3. Overview of voice definitions

Voice	Definitions	
Absolute passive	1	p. 43
Absolute antipassive	2	
Non-absolute passive	3	p. 46
Non-absolute antipassive	4	
Passive	5	p. 51
Antipassive	6	
Reflexive	7	p. 53
Reciprocal	8	
Causative	9	p. 57
Anticausative	10	
Indeterminate causative-anticausative	11	p. 60
Applicative	12	p. 63

The fundamental distinction regarding interdiathetic comparison between the passive and antipassive voice relations on the one hand, and the reflexive, reciprocal, causative, anticausative, and applicative voice relations on the other hand is illustrated once again in table 4 below. The passive and antipassive voice relations are defined according to a comparison of two diatheses both of which feature the same number of semantic participants ($P_n = P_n$); while the reflexive, reciprocal, causative, anticausative, and applicative voice relations are defined according a comparison of two diatheses in which one diathesis features one more semantic participant than the other ($P_n \neq P_{n+1}$).

Table 4. Overview of interdiathetic comparison in voice definitions

Voices	Interdiathetic comparison
PASS, ANTP	D_1 (V, P_n) ↔ D_2 (V, P_n)
REFL, RECP, CAUS, ANTC, APPL	D_1 (V, P_n) ↔ D_2 (V, P_{n+1})

As noted repeatedly in the preceding sections, several voice definitions share one or more criteria and thus resemble each other to varying degrees. An overview of these similarities is provided below in tables 5-6 which facilitate the differentiation of the

various voices. As evident in table 5, the passive and antipassive voice relations are distinguished from each other according to the semantic role of the semantic participant in D_2 which is least likely to be expressed syntactically (or cannot be expressed syntactically at all). In turn, the absolute passive and antipassive voice relations are differentiated from the non-absolute passive and antipassive according to the incapability of one semantic participant in D_2 to be expressed syntactically. As seen in table 6, the reflexive, reciprocal, causative, anticausative, and applicative voice relations are discerned from each other according to the semantic role of the additional semantic participant in D_2 and verbal marking. Finally, the reflexive and reciprocal voice relations are distinguished from each other according to the behaviour of the referent(s) of a semantic participant in D_1.

Table 5. Differentiation between the passive and antipassive voices

	(Absolute)		(Non-Absolute)	
	PASS	**ANTP**	**PASS**	**ANTP**
One semantic participant in D_2 cannot be expressed syntactically	✓	✓	-	-
The most agent-like semantic participant is least likely to be expressed syntactically	✓	-	✓	-

Table 6. Differentiation between other voices

	REFL	**RECP**	**CAUS**	**ANTC**	**APPL**
The additional semantic participant in D_2 is a causer	-	-	✓	✓	-
The verb in D_2 has additional marking compared to the verb in D_1	-	-	✓	-	✓
The referents of one semantic participant in D_1 act upon each other	-	✓			

3 Voice syncretism

As explained in chapter 1, VOICE SYNCRETISM refers to formal verbal marking shared by two or more of the seven voices of focus in the present study defined as comparative concepts in the preceding chapter (i.e. passive, antipassive, reflexive, reciprocal, anticausative, causative, applicative). By contrast, DEDICATED VOICE MARKING can be defined as formal verbal marking dedicated or restricted to a single voice (cf. Zúñiga & Kittilä 2019: 233). Voice syncretism is the primary focus of this and subsequent chapters, while a discussion of decicated voice marking is restricted mainly to §6.2. Furthermore, a distinction is henceforth maintained between SIMPLEX VOICE SYNCRETISM referring to marking shared by two voices (see chapter 4) and COMPLEX VOICE SYNCRETISM referring to marking shared by more than two voices (see chapter 5). As illustrated in table 7 below, there are logically 21 simplex patterns of voice syncretism involving two of the abovementioned voices, and 99 complex patterns of voice syncretism involving more than two of the aforementioned voices. Observe that complex patterns logically entail simplex (or less complex) patterns; for instance, the attestation of reflexive-reciprocal-anticausative syncretism in any given language implies that the language in question also features reflexive-reciprocal, reflexive-anticausative, and reciprocal-anticausative syncretism.

Table 7. Number of logically possible patterns of voice syncretism

	Number of voices sharing voice marking	Number of voice patterns	
Dedicated voice marking	1	7	
Simplex voice syncretism	2	21	
Complex voice syncretism	3	35	99
	4	35	
	5	21	
	6	7	
	7	1	
			Σ

The purpose of this chapter is two-fold. Firstly, it provides an overview of previous typological research on voice syncretism in §3.1. As discussed in these sections, two main approaches to the study of voice syncretism can be discerned in the literature. In brief, one approach can be characterised as having a semantic core meaning as its point of reference in investigations of voices and voice syncretism, while the other approach has formal marking as its point of reference. Secondly, this chapter establishes three main types of voice syncretism based on resemblance in voice marking in §3.2. All patterns of voice syncretism discussed in subsequent chapters belong to one of these types.

3.1 Previous research

As noted in the beginning of this chapter, this and the following sections provides a general overview of previous typological research on voice syncretism. Studies and investigations of specific patterns of the said syncretism are addressed later in chapters 4 and 5. Two main approaches to the study of voice syncretism can be distinguished in the literature. One approach has traditionally been closely associated with the infamous middle voice and entails a semantic core meaning (often characterised as a subject's affectedness; cf. Klaiman 1991) as point of reference for investigations of voices and their syncretism. The scope of this approach is accordingly restricted to voices complying with the aforementioned semantic core meaning, typically considered to include passives, reflexives, reciprocals, and anticausatives (in addition to various other semantic functions not of primary interest in the present study). By contrast, the other approach has formal marking as its point of reference and its semantic and functional scope is therefore largely unrestricted. Consequently, the latter approach is considerably more explicit in relation to voice syncretism (as formal marking is investigated with regard to semantic meaning) than the former approach (in which semantic meaning is examined with regard to formal marking). Nevertheless, observe that neither approach is entirely homogenous, as will become evident in the following two sections, and the two approaches thus represent a simplified dichotomy.

3.1.1 Middle voice and semantics

The conceptualisation of a middle voice can be traced the grammatical traditions pertaining to Greek and Sanskrit (cf. Greek *mesótēs* or *mésē diathesis* 'middle diathesis,' Sanskrit *ātmanepada* 'word for oneself;' Zúñiga & Kittilä 2019: 168), though discussions of the phenomenon in a broader theoretical perspective are of more recent date. Zúñiga & Kittilä cite early characterisations of the middle voice by Krüger (1846) and Kuryłowicz (1964), but note that Lyons (1968/1969) "is generally credited with reinterpreting the original idea of an 'action performed with special reference to the subject' for English phenomena" (Zuñiga & Kittilä 2019: 172). In his classic "Introduction to Theoretical Linguistics," Lyons describes the middle voice in the following manner:

> "As the term suggests, the *middle* was thought of as intermediate between the primary opposition of active and passive (signifying either an 'action', like the active, or a 'state', like the passive, according to the circumstances or the inherent meaning of the verb in question). […] The implications of the middle (when it is in opposition with the active) are that the 'action' or 'state' affects the subject of the verb or his interests." (original italics; Lyons 1968/1969: 373)

Barber (1975) further elaborates that "the middle voice is expressing the fact that the subject is not only performing the action, as agent, but receiving some benefit from it as well" (id.: 18). Illustratively, the Greek middle voice can be used to express meanings best described as, e.g., autobenefactive (e.g. 'to take sth. for self'), reflexive (e.g. 'to wash self'), and reciprocal (e.g. 'to crown e.o.;' id.: 18f.), inter alia. At the time of writing, Barber argued that the "linguistic literature on the middle voice is almost nonexistent" (id.: 17), yet it can be noted that the label "middle voice" has been applied in descriptive studies of non-Indo-European languages since at least the 1950s (e.g. Arnott 1956 on the Atlantic language Fula, Chafe 1960 on the Northern Iroquoian language Seneca, and Wallis 1964 on the Oto-Manguean language Mezquital Otomí). Subsequent research on the middle voice in the 1970s and 1980s eventually led to the first comprehensive typological investigations of the phenomenon, culminating in studies by Klaiman (1982, 1991) and Kemmer (1993, 1994). Both linguists argue that

affectedness of the subject or the self lies at the semantic core of the middle voice; in the words of Klaiman (1991: 104f.), "the middle implicates the logical subject's affectedness" as well as "detransitivization (valence reduction) and reflexivity." Klaiman and Kemmer thus reiterate Lyons' characterisation of the middle voice quoted above, as here acknowledged explicitly by Kemmer:

> "[…] there is a coherent, although complex, linguistic category subsuming many of the phenomena discussed under the name of middle […] and this category receives grammatical instantiation in many languages. The category of the middle, although without fixed and precise boundaries, nevertheless has a clearly discernible semantic core that fits the traditional characterization of the middle voice exemplified in the definition cited above from Lyons." (Kemmer 1993: 3)

Thus, traditionally the middle voice has been regarded as a category loosely defined primarily according to a set of presumably related semantic criteria or features (see also, e.g., Kemmer 1993: 238) and secondarily on similarities in marking (e.g., id.: 15ff.). In turn, this category can seemingly manifest itself in different ways in different languages, and neither Klaiman nor Kemmer claim that the functional scope of the middle voice in different languages is necessarily the same. In fact, as argued by Shibatani (2004: 1149), "[t]he middle (or medial) voice is considered to be the most heterogeneous voice category." For example, as noted further above, in Greek the middle voice can express reflexivity and reciprocity in addition to passivity and anticausativity (ibid.), but these functions "are expressed by distinct constructions such as the spontaneous, the reflexive, the reciprocal, and the passive construction in English and other languages" (id.: 1157).

While studies within the tradition described above rarely focus explicitly on voice syncretism, they provide valuable implicit insights into the said syncretism due to their extensive focus on semantic similarities between the passive, reflexive, reciprocal, and anticausative voices. Nevertheless, being semantically and syntactically heterogenous and based largely on vaguely defined fuzzy boundaries, a "middle voice" can hardly be defined as a comparative concept and the term is avoided entirely in subsequent chapters of the present study. However, due to the prevalent perception of passives,

reflexives, reciprocals, and anticausatives being associated with each other in the literature, voice syncretism involving at least two of the aforementioned four voices will henceforth be known as MIDDLE SYNCRETISM. As shown in the following chapters, such syncretism is cross-linguistically prevalent for which reason the grouping of the aforementioned voices is not unfounded. As discussed in the next section, a similar solution has previously been suggested by, e.g., Shibatani (2004) in terms of the middle voice being a "family of constructions," and by Kulikov (2010: 394f.; 2013: 265ff.) and Zúñiga & Kittilä (2019: 175ff.) in terms of a "middle cluster."

A few prominent investigations focusing to various extents on middle syncretism either implicitly or explicitly predate Klaiman's (1991) and Kemmer's (1993) observations on the phenomenon. For instance, in an early pioneering study, Nedjalkov & Sil'nickij (1969: 40ff.) investigate and exemplify various patterns of voice syncretism involving anticausatives; being associates of the Leningrad-St. Petersburg Typology Group, their study is addressed again in the next section. Voice syncretism involving passives is addressed by Siewierska (1984), Shibatani (1985), and Haspelmath (1990); while voice syncretism involving reflexives is examined most notably by Geniušienė (1987). It is, however, worth mentioning that voice syncretism is not of primary interest to any of these studies. Nevertheless, the latter two studies are particularly noteworthy for their systematic sample-based approaches which makes it possible to extract cross-linguistic data on voice syncretism. In fact, it seems that these two studies still stand as the most comprehensive surveys of voice syncretism despite being published more than three decades ago and not explicitly dedicated to the matter. In this respect, the studies in question differ from other inquiries into voice syncretism (whether implicit or explicit) which have generally provided more sporadic observations on the phenomenon. For these reasons, Geniušienė's (1987) and Haspelmath's (1990) studies are addressed in more detail in §3.1.3 and §3.1.4, respectively.

3.1.2 Families, clusters, and voice ambivalence

As noted in the previous section, Shibatani (2004) suggests that the middle voice and other potential voices can be perceived as "families of constructions" and argues that "it is the morphological unity […] that overtly indicates the nature of voice as

something comprising of a family of constructions" (id.: 1147f.). Thus, Shibatani defines unity by similarities in formal marking, not by similarities in semantic meaning as it has traditionally been the case with studies of the middle voice. As briefly noted in the preceding section, Kulikov (2010: 394f.; 2013: 265ff.) and Zúñiga & Kittilä (2019: 175ff.) adopt a similar view but use the term "cluster" rather than "family." In addition to a "middle cluster" (or "detransitivizing cluster;" id.: 237) both Kulikov (2010: 395) and Zúñiga & Kittilä (2019: 234ff.) also recognise a "transitive" or "transitivising cluster" involving the causative and applicative voices, i.e. causative-applicative syncretism. Evidently, the scope of this approach is not restricted by any specific semantic core meaning, and the approach may be applied to the study of the seven voices of interest in the present study. Systematic investigations of this kind, in which formal marking is considered with regard to its semantic meaning (rather than semantic meaning being considered with regard to its formal marking) can be traced back to the Leningrad-St. Petersburg Typology Group established in the early 1960s at the Institute of Linguistics of the USSR Academy of Sciences.[3] Nedjalkov (1964: 301f.) describes the fundamental ideology of the group in the following manner (cited via Nedjalkov 1988: xii; Comrie & Polinsky 1993: vii):

> "[…] meanings of comparable grammatical categories in different languages coincide to a greater or lesser degree. Partial coincidence is characteristic not only of meanings whose relatedness is obvious […] but also of those meanings that at first glance may appear totally unrelated and occur within the semantic limits of the grammatical form by accident, as is the case with the causative and passive meanings in some languages. […] We have reason to assume that at least for some comparable grammatical categories in different languages there exists a certain limit (or limits) of possible syncretism. […] According to the range of various meanings expressed by comparable forms in them, individual languages differ from one another and can be subject to classification."

[3] Originally "the Group for the Typological Study of the Structure of Languages," and later variously as "the Xolodovič School" (commemorating the first head of the group, Aleksandr A. Xolodovič), "the Leningrad Typological School," and "the Leningrad Typology Group" (Nedjalkov & Litvinov 1995: 215f.).

Specifically causatives were an early subject of interest to the Leningrad-St. Petersburg Typology Group, for which they also "first achieved international eminence" (Comrie & Polinsky 1993: vii) following the publication of a "typology of causative constructions" (*Типология каузативных конструкций*) edited by Xolodovič (1969). In the said publication's chapter on morphological and lexical causatives, Nedjalkov & Sil'nickij (1969) explicitly address syncretism (*многозначность*) of causatives (id.: 35ff.) and anticausatives (id.: 40ff.).[4] Nedjalkov & Sil'nickij more specifically address and exemplify causative-applicative, causative-reciprocal, causative-passive, passive-anticausative, reflexive-anticausative and reciprocal-anticausative patterns of simplex syncretism in addition to various patterns of complex voice syncretism.

More recent prominent studies associated within the same tradition have been published by Kulikov & Nedjalkov (1992) who provide a "questionnaire for causativisation" (*Questionnaire zur Kausativierung*) in which the same patterns of voice syncretism noted by Nedjalkov & Sil'nickij (1969) are reiterated; by Kazenin (1994, 2001a) and Kulikov (2001) who both examine various patterns of voice syncretism, albeit rather briefly; and by Nedjalkov (2007d) who has provided the most comprehensive account of syncretism focused on a specific voice to date, namely the reciprocal voice. Nedjalkov is also notable for explicitly acknowledging different degrees of resemblance in voice marking; a topic addressed in much more detail in the following sections. Nevertheless, despite six decades of research on voice syncretism, Malchukov (2015, 2016, 2017) has argued that the syncretism in question may be more widespread than previously thought and that the typology thereof has not yet been fully explored, as illustrated by the quotation below; the terms "ambivalent voice" and "voice ambivalence" coined by Malchukov[5] denote voice syncretism. Malchukov notably goes on to design a semantic map of "voice categories capturing selective similarities between individual categories" which can be used to explain

[4] A translated version of the chapter is available in an anthology of "trends in Soviet theoretical linguistics" edited by Kiefer (1973); see Nedyalkov & Silnitsky (1973).

[5] Malchukov also used the terms during his presentation "Valency classes cross-linguistically: parameters of variation" at the Association for Linguistic Typology's 10th biennial conference in Leipzig, 2013.

various patterns of voice syncretism involving the causative, applicative, passive, and antipassive voices (2015: 123; 2016: 414; 2017: 24). The explanations provided by this map is addressed repeatedly in the following chapters, while the map itself is addressed in more detail in §7.7.

> "One aspect of this topic that has not been sufficiently acknowledged so far is the pervasiveness of "ambivalence" of voice categories, the fact that a certain voice marker (or, more broadly, a valency-changing marker) performs different functions when applied to different valency classes of verbs (in the first place to intransitives and transitives). Admittedly, there have been occasional observations made about such polysemies in the literature on individual valency categories […], but with a few exceptions […] no extensive typological studies have been undertaken so a general picture is still lacking." (Malchukov 2016: 289; see also 2015: 103; 2017: 3)

The present study can to some extent be seen as a continuation of the tradition initiated and continued by associates of the Leningrad-St. Petersburg Typology Group, most notably Nedjalkov and Malchukov. Nevertheless, certain aspects of the approach employed in the present study differs considerably from the aforementioned tradition, most notably how voices are defined.

3.1.3 Geniušienė (1987) on reflexive syncretism

As noted in §3.1.1, Geniušienė's (1987) widely cited typology of reflexives is notable for its systematic sample-based approach which makes it possible to extract cross-linguistic data on voice syncretism, although the syncretism in question is not of primary interest to the said study. The same goes for Haspelmath's (1990) study on passives mentioned in the same section. Thus, this section provides a brief overview of the data on voice syncretism in Geniušienė's study, while a similar overview follows in the next section in relation to Haspelmath's study.

Geniušienė's (1987) study of reflexives is based on a cross-linguistic survey of 50 languages: 25 Indo-European languages and 25 non-Indo-European languages from seven and fifteen (WALS) genera, respectively. Geniušienė investigates these

languages with regard to fifteen "derived R[eflexive] V[erb] diatheses" (id.: 57; which she also call "recessive diatheses;" id.: 220ff.), all of which she gives a unique identifier in the form of a delta succeeded by a subscript numeral (Δ_i). Of relevance to the present study are the following seven "derived RV diatheses" (id.: 230): "semantic reflexives" (Δ_1), "absolute RVs" (Δ_2), "reciprocal RVs" (Δ_4), "decausatives RVs" (Δ_7), and "reflexive passives" (Δ_9) in addition to "autocausative RVs" (Δ_3) and "converse RVs" (Δ_{11}). The first five diatheses roughly correspond to the reflexive, antipassive, reciprocal, anticausative, and passive voices in the present study, respectively. "Autocausative RVs" are also treated as anticausatives here, because many of Geniušienė's examples of this phenomenon seem to involve two voices which differ primarily in terms of a causer (§2.2.4); cf., e.g., Estonian *lask-* 'to put sth. down' ↔ *lask-u-* 'to go down' (id.: 316). The same is true for Geniušienė's examples of "conversive RVs;" cf., e.g., Swedish *vulkanen utspyr asken* 'the volcano erupts the ashes' and *asken utspy-s ut vulkanen* 'the ashes erupt from the volcano' (id.: 273; the English translations are slightly modified here). Geniušienė argues that the agent in the former clause in paired examples of this kind "changes into some other semantic role" (id.: 228) in the latter clause, and the voice relation can hardly be considered passive. On the contrary, the former clause differs from the latter in having a causer, and the voice relation is thus treated as anticausative (i.e. 'to erupt sth.' ↔ 'to erupt').

The findings of Geniušienė's (1987) survey of the seven "derived RV diatheses" described above are summarised in table 8 below (cf. id.: 244, 258, 308, 320). Observe that the table only includes a sub-set of twenty languages, each representing a unique (WALS) genus and one or more voices featuring formal verbal marking. Geniušienė also discusses languages with various periphrastic constructions (e.g. English and the Oto-Manguean language Yatzachi Zapotec) which do not comply with any of the voice definitions in the present study for which reasons the said languages are excluded in the table below. The change in verbal conjugation paradigm described for the Chaplin dialect of Siberian Eskimo (id.: 306f.) is not considered voice marking either according to the principles presented in chapter 2.2.1. A hyphen within parentheses in table 8 denotes a "possible absence" and a check mark within parentheses "a highly restricted class" (id.: 353); while an asterisk indicates paradigmatic voice marking (i.e. fusion of voice marking and agreement).

"Inconclusive information" marked by a question mark (ibid.) in the original source is not included in the table. Finally, note that Geniušienė treats the Mordvin languages Erzya and Moksha collectively.

It is important to note that Geniušienė (1987) includes more than one voice marker for some languages and does not make a clear distinction between them and their functions. For instance, Geniušienė remarks that "suffixes containing *-d-* or *-z-* are used in Hungarian," probably referring to suffixes like *-od, -oz, -kod, -koz* (each with several allomorphs), etc., but does not differentiate them nor their specific uses. Thus, table 8 only gives an approximate idea of the extent of voice syncretism in the various languages, and no attempt has here been made to alter Geniušienė's analysis of the said languages. However, it can be mentioned that her analysis of languages also found in the language sample of the present study (i.e. the Indo-European language Eastern Armenian, the Permic language Udmurt, and the language isolate Nivkh; all EA) do reflect the analysis of the present study. In contrast, no passive-antipassive-reflexive-reciprocal-anticausative syncretism is recognised for the Ugric language Hungarian (EA) nor for the Uto-Aztecan language Shoshoni (NA). In the former language the abovementioned suffixes *-kod* and *-koz* are associated with antipassivity, reflexivity, and reciprocity; while the suffixes *-od* and *-oz* are associated with, e.g., anticausativity and resultative state, but not passivity (for an overview of these and related markers as well as their various functions, see Károly 1982). Geniušienė only briefly addresses Shoshoni explicitly, mentioning the prefixes *na-* and *nɨɨ-* (id.: 306). Cognates of these prefixes are widely associated with passivity, reflexivity, reciprocity, and/or anticausativity among the Numic languages (see, e.g., Crum & Dayley 1993: 118ff. on Western Shoshoni; Charney 1993: 125ff. on Comanche; Dayley 1989: 104ff. on Panamint; Sapir 1930: 108ff. on Southern Paiute; Thornes 2003: 373ff. on Northern Paiute), but not antipassivity. Cognates of the prefix *tɨ-* are more commonly associated with antipassivity in the said languages (see, e.g., Crum & Dayley 1993: 122f. on Western Shoshoni; Charney 1993: 128f. on Comanche; Dayley 1989: 111f. on Panamint; Thornes 2003: 379ff. on Northern Paiute).

Table 8. Geniušienė's (1987) survey of reflexive syncretism

		Marking	REFL	RECP	ANTC			PASS	ANTP
			Δ_1	Δ_4	Δ_3	Δ_7	Δ_{11}	Δ_9	Δ_2
Indo-European genera	Swedish	*-s*		✓	✓	✓	✓	✓	✓
	Russian	*-sja*	✓	✓	✓	✓	✓	✓	✓
	Lithuanian	*-si-/-s*	✓	✓	✓	✓	✓		✓
	Armenian	*-v*	✓	✓	✓	✓	✓	✓	
	Greek	*	(✓)	✓	✓	✓	(✓)	✓	
	Latin	*	(✓)	✓	✓	✓		✓	
	Sanskrit	*	(-)	✓	✓	✓		✓	
Uralic genera	Udmurt	*-śk*	✓	✓	✓	✓	✓	✓	✓
	Hungarian	"*-d* or *-z*"	✓	✓	✓	✓	✓	✓	✓
	Veps	*-s*	✓	✓	✓	✓	(✓)		✓
	Mordvin[6]	*-v*	(✓)		✓	✓	✓	✓	
	Selkup	*-(c)y, -ī˳*	✓		✓	✓	(✓)		
Other genera	Amharic	*tə-*	✓	✓	✓	✓		✓	
	Shoshoni	*na-, nɨɨ-*	✓	✓	✓	✓		✓	(✓)
	Georgian	*i-*	✓	(-)	✓	✓	✓	✓	✓
	Uzbek	*-n, -l*	✓		✓	✓	✓	✓	(✓)
	Fula	*-ii, -ike*	✓		✓	✓			✓
	Nivkh	*p'-*	✓		✓	(✓)	(-)		
	Khmer	*rə-*	(-)	(✓)	✓	✓			
	Aymara	*-si*	✓	✓					

Tables 9a-b below provide a statistical overview of the simplex (a) and complex patterns of voice syncretism (b) that can be extracted from Geniušienė's findings summarised above in table 8, if "possible absences" of voices are ignored and the voices "of a highly restricted class" are treated on par with each other. Observe that the table also encompasses patterns entailed by complex patterns (see the beginning of this chapter), as the table would otherwise give the false impressions that some languages lack certain patterns. For instance, Aymara is the only language featuring reflexive-reciprocal voice marking which is not syncretic with the marking of other voices, yet ten other languages clearly feature reflexive-reciprocal syncretism as well. Thus, the tables 9a-b include a total of 26 patterns of voice syncretism.

[6] Geniušienė (1987) treats the Mordvin languages Erzya and Moksha collectively.

Table 9. Patterns of syncretism in Geniušienė's (1987) survey

a.

REFL-ANTC	16	(32 %)
PASS-ANTC	13	(26 %)
RECP-ANTC	13	(26 %)
REFL-RECP	11	(22 %)
PASS-REFL	11	(22 %)
PASS-RECP	10	(20 %)
ANTP-ANTC	10	(20 %)
ANTP-REFL	9	(18 %)
ANTP-RECP	7	(14 %)
PASS-ANTP	7	(14 %)

b.

PASS-REFL-ANTC	11	(22 %)
PASS-RECP-ANTC	10	(20 %)
REFL-RECP-ANTC	10	(20 %)
ANTP-REFL-ANTC	9	(18 %)
PASS-REFL-RECP	8	(16 %)
PASS-REFL-RECP-ANTC	8	(16 %)
PASS-ANTP-ANTC	7	(14 %)
ANTP-RECP-ANTC	7	(14 %)
ANTP-REFL-RECP	6	(12 %)
PASS-ANTP-REFL	6	(12 %)
ANTP-REFL-RECP-ANTC	6	(12 %)
PASS-ANTP-REFL-ANTC	6	(12 %)
PASS-ANTP-RECP	5	(10 %)
PASS-ANTP-RECP-ANTC	5	(10 %)
PASS-ANTP-REFL-RECP	4	(8 %)
PASS-ANTP-REFL-RECP-ANTC	4	(8 %)

Tables 9a-b unsurprisingly show that middle syncretism appears to be slightly more common among the languages of Geniušienė's (1987) sample compared to other patterns of syncretism. This finding is confirmed by the present study, although the specific frequencies and the order thereof only bear superficial resemblance, as shown in more detail in chapter 6. Most notably, the frequential percentages of voice syncretism attested in Geniušienė's study are greatly inflated compared to those attested in the present study. For example, reflexive-anticausative syncretism is attested in 32 percent of the languages in Geniušienė's sample but only in roughly fifteen percent of the languages in the sample of the present study. Likewise, the frequency of passive-antipassive-reflexive-reciprocal-anticausative syncretism is eight percent in the former sample, but less than one percent in the latter. The frequencies can be compared in more detail to those attested in the present study in tables 26 and 28 on pages 190 and 193, respectively. The aforementioned discrepancies can be explained by the smaller size of Geniušienė's language sample and its inclusion of several related languages (albeit of different genera) with rather similar patterns of voice syncretism, notably Indo-European and Uralic languages (Geniušienė 1987: 218f.).

3.1.4 Haspelmath (1990) on passive syncretism

In Haspelmath's (1990) study on "the grammaticization of passive morphology," he provides a survey of "[o]ther uses of passive morphemes" (id.: 36) in a sample of 80 languages from 72 different (WALS) genera. Note that seven of the Austronesian languages in Haspelmath's sample belong to the Oceanic genus, and so does one of the "Indo-Pacific" languages, Magori. Of the aforementioned 80 languages 31 "were found to have a passive" (id.: 28) and constitute the focus of Haspelmath's discussion. Fourteen of the 31 languages feature a passive voice characterised by some kind of formal verbal marking, and are thereby of interest to the present study. A fifteenth language, Mwera, only features a potential passive (i.e. "the subject is capable of undergoing an action;" id.: 33) and is therefore ignored here. Haspelmath's survey of passive syncretism covers reflexive, reciprocal, anticausative, passive, and antipassive ("deobjective") functions, like Geniušienė's (1987) survey of reflexive syncretism described in the preceding section, in addition to various other functions not directly relevant to the discussion here (e.g. resultativity, habituality, collectivity, i.a.). The findings of Haspelmath's (1990) survey are presented below in table 10 below (cf. id.: 36), in which each language represents a unique (WALS) genus. Note that an asterisk indicates paradigmatic voice marking (i.e. fusion of voice marking and agreement), while a check mark within parentheses indicates that "the passive morpheme does not express this use alone but in conjunction with some other morpheme" (ibid.), i.e. type 2 syncretism (§3.2.3).

As also remarked in relation to Geniušienė's (1987) survey in the preceding section, no attempt has here been made to modify Haspelmath's (1990) analysis of the languages in table 10, and the contents represent findings according to his own specific definitions of the various voices. Differences between their respective analyses are therefore also ignored; for example, Geniušienė recognises a reciprocal function for Latin "*-r* forms" (cf. tab. 8 p. 80), but Haspelmath does not.

Table 10. Haspelmath's (1990) survey of passive syncretism

	Marking	REFL	RECP	ANTC	PASS	ANTP
Udmurt	*-śk*	✓	✓	✓	✓	✓
Greek	*	✓	✓	✓	✓	
'O'odham	*	✓	✓	✓	✓	
Tigre	*tə-*	✓	(✓)	✓	✓	
Motu	*he-*	(✓)	(✓)	✓	✓	
Kanuri	*tə-, -tə*	✓		✓	✓	
Latin	*	✓		✓	✓	
Slave	*d-*	✓			✓	
Rukai	*ki-*	✓			✓	
Worora	*-ieŋu*	✓	✓		✓	
Tuareg	*mə-*		✓		✓	
Danish	*-s*			✓	✓	
Uyghur	*-il*			✓	✓	
Nimboran	*-da*			✓	✓	

The approach of Haspelmath's (1990) survey differs from that of Geniušienė's (1987) survey for which reason analogous tables to those presented in the preceding section (cf. tab. 9a-b p. 81) in relation to the latter survey cannot be produced for the former. More specifically, Haspelmath only includes information about reflexive, reciprocal, anticausative, and antipassive voices *if* they share voice marking with the passive voice in any given language. Consequently, although Haspelmath's survey is based on a sample of 80 languages, he only addresses patterns of voice syncretism involving the passive voice which he attests in 31 languages; other patterns of syncretism lie outside the scope of his investigation. Thus, the frequencies for patterns of syncretism extracted from Haspelmath's findings must be calculated according to different sample sizes; 80 languages for frequencies of patterns involving the passive voice, and 31 languages for frequencies of all other patterns. The patterns alongside their frequencies are listed in tables 11a-b below; those calculated according to the latter sample size are marked by asterisks and listed separately. It can otherwise be seen that the same 26 patterns of voice syncretism attested in Geniušienė's (1987) survey can found in that of Haspelmath (1990), mainly due to the extensive syncretism of the Permic language Udmurt (EA) discussed later in §5.4. This language alone makes up for all attestations of voice syncretism involving the antipassive voice.

Table 11. Patterns of syncretism in Haspelmath's (1990) survey

a.

PASS-ANTC	10		(12.5 %)
PASS-REFL	9		(11.3 %)
PASS-RECP	5		(6.3 %)
PASS-ANTP	1		(1.3 %)
REFL-ANTC	6	*	(19.4 %)
REFL-RECP	4	*	(12.9 %)
RECP-ANTC	3	*	(9.7 %)
ANTP-REFL	1	*	(3.2 %)
ANTP-RECP	1	*	(3.2 %)
ANTP-ANTC	1	*	(3.2 %)

b.

PASS-REFL-ANTC	4		(5.0 %)
PASS-REFL-RECP	3		(3.8 %)
PASS-RECP-ANTC	3		(3.8 %)
PASS-REFL-RECP-ANTC	3		(3.8 %)
PASS-ANTP-REFL	1		(1.3 %)
PASS-ANTP-RECP	1		(1.3 %)
PASS-ANTP-ANTC	1		(1.3 %)
PASS-ANTP-REFL-RECP	1		(1.3 %)
PASS-ANTP-REFL-ANTC	1		(1.3 %)
PASS-ANTP-RECP-ANTC	1		(1.3 %)
PASS-ANTP-REFL-RECP-ANTC	1		(1.3 %)
REFL-RECP-ANTC	3	*	(9.7 %)
ANTP-REFL-RECP	1	*	(3.2 %)
ANTP-REFL-ANTC	1	*	(3.2 %)
ANTP-RECP-ANTC	1	*	(3.2 %)
ANTP-REFL-RECP-ANTC	1	*	(3.2 %)

Unlike the frequencies extracted from Geniušienė's (1987) findings (cf. tab. 9a-b p. 81), many of the frequencies from Haspelmath's (1990) study listed in tables 11a-b are surprisingly similar to those attested in the present study. In some cases the percentages are almost identical (cf., e.g., Haspelmath's frequency of 9.7 percent for reciprocal-anticausative syncretism to the 9.9 percent attested in the present study), though in some instances they deviate more (cf., e.g., Haspelmath's 11.3 percent for reflexive-reciprocal syncretism to the 19.4 percent attested in the present study). The frequencies in tables 11a-b above can be compared to those attested in the present study in tables 26 and 28 on pages 190 and 193, respectively.

The patterns attested by both Geniušienė (1987) and Haspelmath (1990) will be discussed and illustrated in more detail in the following two chapters, in which evidence for several additional patterns is also presented. As will be demonstrated in these chapters, 44 patterns of voice syncretism are attested altogether in the language sample of the present study.

3.2 Resemblance in voice marking

Descriptions and investigations of voice syncretism in the literature commonly focus on a complete resemblance in the voice marking of two or more voices, yet in many languages voices sharing some marking may differ slightly in one way or another. To account for such variation in voice marking, three overarching types of voice syncretism will be established in the present study: type 1 syncretism based on a full resemblance in voice marking, type 2 syncretism based on a partial resemblance in voice marking, and type 3 based on a "reverse" resemblance in voice marking. The two first types are rather self-explanatory but nevertheless discussed and illustrated in more detail in §3.2.1, §3.2.2 and §3.2.3, respectively. By contrast, the third type deserves a preparatory explanation before being properly described in §3.2.4. Type 3 syncretism basically denotes a phenomenon whereby voice marking in a given language appears as a suffix in one voice but as a prefix in another voice. Thus, reverse resemblance does not refer to a reverse meaning but to the reverse manner in which the voice marking appears on the verbs in the respective voices. Such voice syncretism is rare, and it is therefore not surprising that discussions of the said phenomenon are almost non-existent in the literature. However, it is explicitly recognised and described in this study for the sake of linguistic diversity.

Furthermore, note that two sub-types of type 1 syncretism will be explicitly recognised: type 1a syncretism in which the voice marking in two voice bears full resemblance under *all* conditions, and type 1b syncretism in which the voice marking in two voices bears full resemblance under *some* conditions. Thus, type 1a syncretism will henceforth be characterised unconditioned, while type 1b syncretism will be characterised conditioned. This difference is essentially dependent on allomorphy: in type 1a syncretism the allomorphy of voice marking in two voices is the same, unlike in type 1b syncretism in which the allomorphy of the voice marking in two voices overlaps only under certain conditions. Consequently, one may argue that the voice marking in type 1b syncretism is not exactly identical, for which reason they are differentiated in the present study for the sake of transparency. In any case, in subsequent chapters the two sub-types are mostly treated collectively simply as type 1 syncretism unless specified otherwise.

3.2.1 Type 1a: Full resemblance (unconditioned)

As noted in the preceding section, type 1a syncretism entails full resemblance in the voice marking of two or more voices under all conditions and thus represents the kind of voice syncretism typically discussed in the literature. Moreover, this type is notably more common cross-linguistically than other types of syncretism, being attested in 41 percent of the languages in the language sample of the present study. By comparison, type 2 syncretism which follows type 1a syncretism in terms of frequency is attested in approximately 11 percent of the languages in the sample. The syncretism is illustrated in the Burraran language Gurr-Goni (AU) below in the form of a reflexive voice relation (56↔57) and a reciprocal voice relation (56↔58). As evident in these examples, the suffix *-yi* in Gurr-Goni serves as voice marking in both the reflexive (57) and reciprocal voices (58).

Gurr-Goni (Green 1995: 214)

56. *nguna-bu-ni*
    2/3MIN.SBJ:1OBJ-hit-PRE
    'S/he/you hit me.'

57. *ngu-bu-**yi**-ni*
    1MIN.SBJ-hit-REFL-PRE
    'I hit myself.'

58. *awuni-bu-**yi**-ni*
    3AUG.NF.SBJ-hit-RECP-REAL
    'They are hitting each other.'

Additional non-verbal marking accompanying syncretic voice marking does not affect the classification of the said syncretism. For instance, in the West Bougainville language Rotokas (PN) the prefix *ora-* serves as voice marking in both the reflexive and reciprocal voices (59↔60), but in the latter voice the prefix can optionally be accompanied by the reciprocal adverb *oisiaropavira* (61) unlike in the former. Nevertheless, the formal verbal voice marking clearly remains the same in both the reflexive and reciprocal voices under all conditions, and the Rotokas examples thus illustrate type 1a syncretism.

Rotokas (S. Robinson 2011: 193, 221)

59. *uuvau-va* *Rara* *kopii-pie-e-va*
tuberculosis-SG.F NAME die-CAUS-3SG.F-PST
'Tuberculosis killed Rara.'

60. ***ora**-kopii-pie-pa-a-i*
REFL/RECP-die-CAUS-CONT-3PL-PRS
a. 'They are killing themselves.'
b. 'They are killing each other.'

61. *oisiaropavira* ***ora**-kopii-pie-pa-a-i*
reciprocally RECP-die-CAUS-CONT-3PL-PRS
'They are killing each other.'
(*'They are killing themselves.')

In rare cases, non-verbal marking is obligatory in type 1a syncretism, for example in the Ju-Kung language Western !Xun (AF). In this language the suffix *-ā* serves as voice marking in both the applicative (62) and reciprocal voices, in the latter obligatorily accompanied by the reciprocal pronoun *kòè* (63). Likewise, in Makalero (PN) the suffix *-ini* serves as voice marking in both the antipassive (66-67) and causative voices, in the latter accompanied by an auxiliary light verb (64-65). A sub-type of type 1a syncretism which takes obligatory non-verbal marking into account could potentially be established for languages like Western !Xun and Makalero, but these languages are the only two languages in which such marking has been attested in the language sample of the present study, for which reason the establishment of such sub-type has here been deemed superfluous.

Western !Xun (Heine & König 2015: 88; 194, 210)

62. APPL *cŋ̀* 'to drink sth.' ↔ *cŋ̀-**ā*** 'to drink sth. at sth.'

63. RECP *hn̄* 'to see sb.' ↔ *hn̄-**ā** kòè* 'to see e.o.'

Makalero (Huber 2011: 340; 150, 248; 299; 341, 456)

64. CAUS *da'al* 'to break' ↔ *mei=ni da'al-**ini*** 'to break sth.'

65. CAUS *dur* 'to wake up' ↔ *mei=ni dur-**ini*** 'to wake sb. up'

66. ANTP *heru* 'to weave sth.' ↔ *heru-**ini*** 'to weave [sth.]'

67. ANTP *isa* 'to bake sth.' ↔ *isa-**ini*** 'to bake [sth.]'

Next, consider the examples below (68-79) from the Algonquian language Arapaho (NA), the language isolate Ainu, and the Ugric language Northern Mansi (both EA). As seen in these examples, the non-absolute passive and absolute antipassive voices in Arapaho (68-71) share the same voice marking, and so do the causative and anticausative voices in Ainu (72-75) and Northern Mansi (76-79); note that the schwa in (77) is epenthetic. However, observe that in each of the absolute antipassive and anticausative voices the voice marking is in variation with some verbal marking in the contrasting diathesis according to which it is defined (cf. Arapaho *-oo* ↔ *-ee* in exx. 70-71; Ainu *-e* ↔ *-ke* in exx. 74-75; Northern Mansi *-t* ↔ *-l* in exx. 78-79). Nevertheless, as the present study focuses strictly on voice marking, the verbal marking in the contrasting diatheses is here deemed irrelevant. The passive-antipassive syncretism in Arapaho, and the causative-anticausative syncretism in Ainu and Northern Mansi thus qualify as type 1a syncretism. More examples of Arapaho passive-antipassive syncretism are provided in §4.2.4 (vid. exx. 194-196 p. 121), while additional examples of Ainu and Northern Mansi causative-anticausative syncretism are given in §4.3.6 (vid. exx. 293-303 p. 140).

Arapaho (Cowell & Moss Sr. 2008: 133, 229; 155, 323; 135; 136)

68. PASS *neh'-* 'to kill sb.' ↔ *neh'-**ee**-* 'to be killed [by sb.]'
69. PASS *to3ih-* 'to follow sb.' ↔ *to3ih-**ee**-* 'to be followed [by sb.]'

70. ANTP *niitow-oo-* 'to hear sth.' ↔ *niitow-**ee**-* 'to hear [sth.]'
71. ANTP *neeceew-oo-* 'to be in charge of sb.' ↔ *neeceew-**ee**-* 'to be in charge of [sb.]'

Ainu (Alpatov et al. 2007: 1760; ibid.; 1762; 1780)

72. CAUS *ray* 'to die' ↔ *ray-**ke*** 'to kill sb.'
73. CAUS *ahuy* 'to burn' ↔ *ahuy-**ke*** 'to burn sth.'

74. ANTC *per-e* 'to break sth.' ↔ *per-**ke*** 'to be broken'
75. ANTC *moymoy-e* 'to move sth.' ↔ *moymoy-**ke*** 'to move'

Northern Mansi (Rombandeeva 1973: 154; ibid.; 160; ibid.)

76. CAUS *lap-* 'to rise' ↔ *lap-**l**-* 'to raise sth.'
77. CAUS *woŋn-* 'to stretch' ↔ *woŋən-**l**-* 'to stretch sth.'

78. ANTC *āpram-t-* 'to hurry sb.' ↔ *āpram-**l**-* 'to hurry'
79. ANTC *toram-t-* 'to calm sb.' ↔ *toram-**l**-* 'to calm down'

The "antipassive-like" diathetic relations described for the Salishan languages Nxa'amxcin and Musqueam in §2.2.2 (vid. exx. 12-14 p. 48) are rather similar to the Arapaho absolute antipassive voice relations and the Ainu and Northern Mansi anticausative voice relations addressed above. The antipassive-like diatheses in both Nxa'amxcin and Musqueam are characterised by the suffix *-m*, which also serves as voice marking in the absolute passive voices in the languages (80-87). However, as already noted in §2.2.2, the antipassive-like diatheses in the two languages do not qualify as proper antipassive voices, and the examples are consequently only presented here for the sake of comparison and linguistic diversity.

Nxa'amxcin (Willett 2003: 153; 158; 104, 159; 153, 164; 104, 166)

80.	PASS	*wík-łt-*	'to see sth.'	↔	*wík-łt-**m**-*	'to be seen [by sb.]'
81.	PASS	*x̣əlq'-nt-*	'to kill sb.'	↔	*x̣əlq'-nt-**m**-*	'to be killed [by sb.]'
82.	ANTP-like	*wík-łt-*	'to see sth.'	↔	*wík-**m**-*	'to see [sth.]'
83.	ANTP-like	*x̣əlq'-nt-*	'to kill sb.'	↔	*x̣əlq'-**m**-*	'to kill [sb.]'

Musqueam (Suttles 2004: 447f., 51; 35, 43; 231; ibid.)

84.	PASS	*k̓ʷɬé-t*	'to spill sth.'	↔	*k̓ʷɬé-t-**əm***	'to be spilled [by sb.]'
85.	PASS	*c̓éw-ɔt*	'to help sb.'	↔	*c̓éw-ɔt-**əm***	'to be helped [by sb.]'
86.	ANTP-like	*kʷə́n-ət*	'to get sth.'	↔	*kʷən-**əm***	'to get [sth.]'
87.	ANTP-like	*ʔáˑ-t*	'to call sb.'	↔	*ʔáˑ-**m***	'to call [sb.]'

Additional examples of type 1a syncretism are provided throughout the subsequent chapters for which reason the syncretism in question is not illustrated nor discussed further here.

3.2.2 Type 1b: Full resemblance (conditioned)

On the one hand, type 1b syncretism entails full resemblance in the voice marking of two voices, like type 1a syncretism. On the other hand, in type 1b syncretism the full resemblance in question is found only under certain conditions, unlike in type 1a syncretism. Type 1b syncretism is notably more rare than type 1a syncretism, and has only been attested in six languages of the language sample in the present study. This type of syncretism is described and illustrated for each of these languages below.

A very illustrative example of type 1b syncretism is provided below from the North Omotic language Wolaytta (AF). In this language the suffix *-ett* without a high pitch serves as voice marking in both the causative (88-89) and passive voices (90-91). Furthermore, this suffix can also have a high pitch (i.e. *-étt*) in the passive voice (92-93), but never in the causative voice (Wakasa 2008: 1008). In other words, the suffix serving as voice marking in the passive voice has two allomorphs (i.e. *-ett/-étt*), while the suffix serving as voice marking in the causative voice has only one (i.e. *-ett*). The allomorphic variation of the passive suffix is dependent on the "tonal prominence" (id.: 84ff.) of the stem to which it is attached: the allomorph *-ett* is found on stems with tonal prominence, while the allomorph *-étt* is found on stems without tonal prominence (id.: 1013). This conditioned allomorphy is particular clear if one compares the verbs in (91) and (92). Note that the voice marking in the passive voice also serves as voice marking in the reflexive and reciprocal voices as discussed later in §5.3.1 (cf. exx. 476-479 p. 171).

Wolaytta (Wakasa 2008: 1008; ibid.; 1014; ibid.; 217, 381; 1013)

88.	CAUS	*boLL-*	'to become hot'	↔	*boLL-**ett**-*	'to make sth. hot'
89.	CAUS	*7aLL-*	'to become narrow'	↔	*7aLL-**ett**-*	'to make sth. narrow'
90.	PASS	*7ánC-*	'to mince sth.'	↔	*7ánC-**ett**-*	'to be minced [by sb.]'
91.	PASS	*dóór-*	'to pile sth. up'	↔	*dóór-**ett**-*	'to be piled up [by sb.]'
92.	PASS	*door-*	'to choose sb.'	↔	*door-**étt**-*	'to be chosen [by sb.]'
93.	PASS	*bonc-*	'to respect sb.'	↔	*bonc-**étt**-*	'to be respected [by sb.]'

Another example of type 1b syncretism is provided below from the language isolate Kutenai (NA) which has various suffixes that can serve as voice marking in the causative voice, one of which is a glottal stop. Interestingly, a suffixal glottal stop can also serve as voice marking in the anticausative voice. As argued by Morgan (1991), the underlying suffix *-p* generally serving as voice marking in the anticausative voice is "realized as glottal stop /ʔ/ before the invariantly encliticized Indicate Marker / ɲi/, and the invariantly encliticized Locative Marker / ɻki/" (id.: 336). As illustrated below, under such conditions (here preceding the "Indicate Marker" *-ni*) the anticausative voice marking (95) fully resembles causative voice marking (94). More examples of the causative-anticausative syncretism in Kutenai are provided in §4.3.6 (vid. exx. 304-307 p. 141).

Kutenai (Morgan 1991: 25, 337)

94.	CAUS	*yiḱta-ni*	↔	*yiḱta-ʔ-ni*
		spill-IND		spill-CAUS-IND
		‘It spilled.’		‘S/he/they spilled it.’
95.	ANTC	*¢uk-ni* (< *¢uku-ni*)	↔	*¢uku-ʔ-ni*
		light-IND		light-ANTC-IND
		‘S/he/they lit it.’		‘It became lit / ignited.’

Likewise, in the language isolate Sandawe (AF) the causative suffix *-kụ̀* and the applicative suffix *-x`* both have the allomorph *-kw* before a vowel due to assimilation (96-98; Steeman 2012: 46). In turn, in San Francisco del Mar Huave (NA) the passive suffix *-Vch* is “homophonous with the unaspirated allomorph of the causative suffix” *-V(j)ch* (99-102; Kim 2008: 305). However, note that the passive suffix is rare, and Kim considers it a “non-productive way of forming passives” (ibid.). Note also that the phonological variation among the stems in examples (100) and (102) is due to a regular morphophonological process of “vowel breaking” (in this case /io/ > /i/; id.: 52ff.). Additionally, in the Atlantic language Ganja Balanta (AF) the antipassive suffix *-t* is similar to one of the allomorphs of the causative suffix *-(V)t* (103-106). The suffix *-t* only has an antipassive use with four verbs though, two of which are exemplified below (105-106) while the other two verbs are illustrated in examples (266-267) on page 134. From a language-specific perspective, the Ganja Balanta verbs in the causative (103-104) and antipassive voices (105-106) belong to different verb classes as indicated by the final infinitive vowels (Creissels & Baiye 2016: 208ff.).

Sandawe (Steeman 2012: 148f., 237; 189f.; ibid.)

96.	CAUS	*kê*	‘to ascend’	↔	*kê-**kw**-*	‘to load sth. up’ (i.e. ‘to let sth. ascend’)
97.	APPL	*ǁhèmé*	‘to pay sth.’	↔	*ǁhèmé-**kw**-*	‘to pay sth. for sb.’
98.	CAUS/ APPL	*mântshà*	‘to eat sth.’	↔	*mântshà-**kw**-*	a. ‘to cause sb. to eat sth.’ b. ‘to eat sth. for sb.’

San Francisco del Mar Huave (Kim 2008: 311; ibid.; 305; ibid.)

99.	CAUS	*pal-*	‘to end’	↔	*-pal-**ach***	‘to end sth.’
100.	CAUS	*-jiong*	‘to dance’	↔	*-jing-**ach***	‘to make sb. dance’
101.	PASS	*-rriujt*	‘to choose sb.’	↔	*-rriujt-**ach***	‘to be chosen [by sb.]’
102.	PASS	*-pior*	‘to sow sth.’	↔	*-pir-**ach***	‘to be sown [by sb.]’

Ganja Balanta (Creissels & Biaye 2016: 209ff.)

103.	CAUS	*sɪɪg*	'to drink sth.'	↔	*sɪɪg-**t**.ɪ*	'to make sb. drink sth.'
104.	CAUS	*sum*	'to be(come) pleasant'	↔	*sum-**t**.i*	'to make sth. be(come) pleasant'
105.	ANTP	*wɔm*	'to eat sth.'	↔	*wɔm-**t**.ɛ*	'to eat [sth.]'
106.	ANTP	*rʊŋ*	'to crush sth.'	↔	*rʊŋ-**t**.ɛ*	'to crush [sth.]'

Furthermore, Montgomery-Anderson (2008) argues that the Southern Iroquoian language Cherokee (NA) has a "reflexive prefix" (id.: 343) as well as a "middle voice prefix" with "some similarities in form and meaning to the Reflexive and probably developed out of it" (id.: 347). The "reflexive prefix" serves as voice marking in the reflexive, reciprocal, and antipassives voices and has three allomorphs: *ataa-* before consonants, *at-* before the vowel /a/, and *ataat-* before all other vowels (id.: 343). In contrast, the "middle voice prefix" serves as voice marking in the anticausative voice, and also has three allomorphs: *ali-* before the consonant /h/ (and seemingly also before /s/ and /n/), *ataa-* before all other consonants, and *at-* before all vowels (id.: 372). The allomorphs of the two prefixes are identical under certain phonological conditions, namely before consonants other than /h/, /s/, and /n/ and before the vowel /a/. These prefixes in Cherokee are illustrated in §5.2.2 (vid. exx. 438-445 p. 166).

In terms of origin, type 1b syncretism in Cherokee can probably be explained diachronically, as suggested by Montgomery-Anderson (2008) above. It is not unlikely that type 1b syncretism in Wolaytta and San Francisco del Mar can be explained in the same manner considering the distinct forms of their respective voice markers, though there is currently little diachronic data available for the language to support such a claim. In contrast, type 1b syncretism in Kutenai and Sandawe is almost certainly the result of coincidental phonological convergence; while Creissels & Biaye (2016) do not shed any light upon the origin of type 1b syncretism in Ganja Balanta.

3.2.3 Type 2: Partial resemblance

As noted in §3.2, investigations of voice syncretism in the literature tend to focus on a full resemblance in the voice marking of two or more voice, while partial resemblance has received comparatively little attention. However, it is worth noting

that variation in the resemblance of voice marking has been explicitly acknowledged by Nedjalkov (2007d: 243f.) in his investigation of "the polysemy of reciprocal markers" in which he makes a distinction between "combined markers" and "complex morphological markers" in passing. According to Nedjalkov, the former kind of markers indicate that "both meanings are expressed by the same marker" (ibid.); in other words, full resemblance in voice marking as described in the two preceding sections. Nedjalkov explains that the latter kind of markers "share a common component" and mentions that the phenomenon can be found in the North Halmaheran language Tidore (PN), in the Northern Pama-Nyungan language Uradhi (AU), in Bolivian Quechua (SA), and in the Algic language Yurok (NA). Nedjalkov's examples from these languages are reproduced below (107); the suffix *-ew* in Yurok is "is an allomorph of a passive marker" (ibid.). Partial resemblance of this kind is further discussed below.

		REFL	RECP	
107.	**Tidore**	*ma-*	*ma-ku-*	
	Yurok	*-ep*	*-ep-ew*	
	Uradhi	*-ːni*	*-ːni-βa*	(e.g. *uta-ni* 'to cut self' ↔ *uta-ni-βa* 'to cut e.o.')
	Quechua	*-ku*	*-na-ku*	(e.g. *riku-ku* 'to look at self' ↔ *riku-na-ku* 'to look at e.o.')

(Nedjalkov 2007d: 244)

Although explicit discussions of type 2 syncretism are rare in the literature, the said syncretism is rather common cross-linguistically. As noted in §3.2.1, type 2 syncretism is only attested in one tenth of all the languages in the language sample of the present study, but the syncretism in attested in a quarter of all languages in the sample for which voice syncretism has been attested. Thus, type 2 syncretism can be found in a rather large portion of languages with voice syncretism. Furthermore, type 2 syncretism is not restricted to the reflexive-reciprocal syncretism illustrated above but is attested for a wide range of different patterns of voice syncretism in the language sample. For illustrative purposes, examples of type 2 syncretism are provided from three languages below.

In the language isolate Kwaza (SA) the causative voice is characterised by the suffix *-dy* (108-109) which has become lexicalised in a number of verbs, including *wady* ‘to give’ in which the suffix appears after the root **wa* of unknown origin and meaning (van der Voort 2004: 372f.). In turn, this verb has grammaticalised into the morpheme *=wady* which serves as voice marking in the applicative voice (110-111). In the Siouan language Assiniboine (NA) the applicative prefix *ki-* (112-113) forms part of the reciprocal prefix *kic^{h}i-* (114-115); these prefixes are further discussed in §4.4.4. Coincidentally, the Kxa language ǂHòã (AF) also features a prefix *ki-* of interest to this discussion. In this language the prefix in question serves as voice marking in both the causative and passive voices, but always features a high tone in the former voice (116-117) “clearly distinguished from the low tone” employed in the latter voice (118-119; Collins & Gruber 2014: 166).

Kwaza (van der Voort 2004: 366; 898, 110; ibid., 373; ibid.)

108.	CAUS	*kãu-*	‘to break’	↔	*kãu-**dy**-*	‘to break sth.’
109.	CAUS	*mãmãñẽ-*	‘to sing’	↔	*mãmãñẽ-**dy**-*	‘to make sb. sing’
110.	APPL	*mãmãñẽ-*	‘to sing’	↔	*mãmãñẽ=**wady**-*	‘to sing for sb.’
111.	APPL	*hãte-*	‘to count sth.’	↔	*hãte=**wady**-*	‘to count sth. for sb.’

Assiniboine (Cumberland 2005: 263, 271)

112.	APPL	*ná*	‘to ask for sth.’	↔	***ki**-ná*	‘to ask sb. for sth.’
113.	APPL	*yuk^{h}ą́*	‘to give room’	↔	***ki**-yúk^{h}ą́*	‘to make room for sb.’
114.	RECP	*pažípa*	‘to poke sb.’	↔	***kic^{h}í**-pažipa*	‘to poke e.o.’
115.	RECP	*yaʔįškata*	‘to tease sb.’	↔	***kic^{h}í**-yaʔįškata*	‘to tease e.o.’

ǂHòã (Collins & Gruber 2014: 142, 186; 21, 165; 21, 164; ibid.)

116.	CAUS	*ču*	‘to drink sth.’	↔	***kí**-ču*	‘to make sb. drink sth.’
117.	CAUS	*’ám*	‘to eat sth.’	↔	***kí**-’ám*	‘to make sb. drink sth.’
118.	PASS	*’ám*	‘to eat sth.’	↔	***kì**-’ám*	‘to be eaten [by sb.]’
119.	PASS	*ǁgòõ*	‘to strike sb.’	↔	***kì**-ǁgòõ*	‘to be struck [by sb.]’

Additional examples of type 2 syncretism are provided throughout the following chapters, for which reason the said syncretism is not illustrated nor discussed further here.

3.2.4 Type 3: Reverse resemblance

As mentioned in §3.2, type 3 syncretism is based on reverse resemblance in voice marking which denotes a peculiar phenomenon whereby voice marking in a given language appears as a suffix in one voice but as a prefix in another. The reverse resemblance does not refer to a "reverse" meaning but rather to the "reverse" manner in which the voice marking appears on the respective verbs. Discussions of type 3 syncretism are very rare in the literature, and it has only been possible to find one prior typological discussion of the phenomenon. In a description of reciprocity in the Gunwinyguan language Nunggubuyu (AU), Nedjalkov (2007d: 252) briefly mentions that the applicative prefix *an^{y}ji-* is "most likely etymologically related" to the phonologically similar suffix *-n^{y}ji* which serves as voice marking in the reflexive, reciprocal, and antipassive voices. Compare the verbs *an^{y}ji-n^{g}ama* 'to swim with sb.' (Heath 1984: 382), *ṛi-n^{y}ji* 'to spear self' or 'to spear e.o.,' and *warguri-n^{y}ji* 'to carry [sb.] on the shoulders' (id.: 392); more examples are provided in §5.2.2. However, note that the resemblance here is not only reverse, but also partial as the affixes are not fully identical phonologically. In the language sample of the present study five other languages with type 3 voice syncretism have been attested, in all of which the syncretism in question is not partial and thus better representative of the type. The syncretism in each of these languages is described below.

Two languages in the sample feature applicative-reciprocal type 3 syncretism, the Nadahup language Hup and the language isolate Mosetén (both SA). The former language is addressed here, and the latter further below. In Hup a so-called "Interactional" prefix *ʔũh-* representing "the primary strategy for indicating reciprocal relations" (122-123; Epps 2008: 487) bears resemblance to the applicative suffix *-ʔũh* (120-121). Epps explicitly argues that "[i]n contrast to the Interactional preform *ʔũh-*, which often functions to decrease valency, Applicative *-ʔũh-* is a valency-increaser" (id.: 500). Epps further suggests that *ʔũh* (understood as a unit "of segmental phonological material;" id.: 119) is "best treated as distinct morphemes on the synchronic level, but as a diachronically unitary entity, from which the functional variants have arguably been derived through grammaticalization" (id.: 120). Epps (2008: 119) further adds that *ʔũh* in Hup can function as the lexical root 'sibling of opposite sex,' as a jussive or optative marker, and as an epistemic modality marker.

Hup (Epps 2008: 852, 500; ibid., 408; 486, 574; 672)

120.	APPL	*d'oʔ*	'to take/get sth.'	↔	*d'oʔ-**ʔũh***	'to take/get sth. for sb.'
121.	APPL	*mæh*	'to hit/kill sb.'	↔	*mæh-**ʔũh***	'to kill sb. for sb.'
122.	RECP	*nɔʔ*	'to give sb. sth.'	↔	***ʔũh**-nɔʔ*	'to give e.o. sth.'
123.	RECP	*mæh*	'to hit/kill sb.'	↔	***ʔũh**-mæh*	'to fight' (i.e. 'to hit/kill e.o.')

In Mosetén the prefix *ti-* serves as voice marking in the applicative voice (124-125); while the suffix *-ti* can serve as voice marking in the reciprocal voice (126-127) in addition to the reflexive and passive voices (§4.1.4). Sakel (2004) remarks that the suffix *-ti* additionally has a function as a verbal stem marker (id.: 233ff.) and can play a role in cross-referential marking (e.g., id.: 186, 190). Sakel also mentions an antipassive function (id.: 311ff.) but based on the limited data she provides in her description of this phenomenon, it has not been possible to assert whether or not it complies with the antipassive definitions employed in this study (vid. exx. 156-159 p. 107). Sakel (2004) only briefly addresses the reverse resemblance of the affixes *ti-* and *-ti*, noting that the latter suffix "frequently occurs in relation to applicatives" (id.: 233).

Mosetén (Sakel 2004: 322; ibid.; 64, 193; 212, 391, 455)[7]

124.	APPL	*tyar-i-*	'to be sad'	↔	***ti**-tyar-i-*	'to be sad about sth.'
125.	APPL	*bae'-i-*	'to live'	↔	***ti**-bae'-i-*	'to live with sb.'
126.	RECP	*tyaj-ki-*	'to meet sb.'	↔	*tyaj-ki-**ti***	'to meet e.o.'
127.	RECP	*chha'sh-i-*	'to reach sb.'	↔	*chha'sh-i-**ti***	'to reach e.o.'

Likewise, two languages in the sample feature causative-applicative type 3 syncretism, the Sepik language Alamblak (PN) and the language isolate Ainu (EA). The former language is addressed here, and the latter further below. Bruce (1979) argues very explicitly that in Alamblak the "[p]arallels between causative and benefactive

[7] Note that the Mosetén verbs *ti-tyar-i-* and *ti-bae'-i-* appear as *ti-tyar-a-* and *ti-bae'-e-* in the original source but represent the same stem (Sakel 2004: 322); for information about the regular vowel changes, see footnote 16 on page 165. Note also that the verbal stem 'to reach sth.' is given variably as *chha'ch-* (id.: 212) and *chhash-* (id.: 391). The variation between the final consonant *ch* and *sh* likely represents a regular consonant alternation (id.: 48f.). It is suspected that the glottal stop in the latter form has been omitted by accident.

constructions are obvious," as "[o]ne of the formatives is the same (*hay* 'give' prefixed as a causative and suffixed as a benefactive) and similar semantic features characterize both" (id.: 254). This resemblance is illustrated by the causative voice relations (128-129) and the applicative voice relations below (130-131). Note that *ni* in (129) is a regular word-medial allomorph of *yi* 'to go' (id.: 250). Bruce even provides an example featuring both affixes, *hay-noh-hay* 'to kill sb. affecting sb. else' (cf. *noh* 'to die;' id.: 358).

Alamblak (Bruce 1979: 356; 209, 250; 177, 431; 255)

128.	CAUS	*tat*	'to hit sb.'	↔	***hay**-tat*	'to make sb. hit sb.'
129.	CAUS	*yi*	'to go'	↔	***hay**-ni*	'to make sb. go'
130.	APPL	*wikna*	'to buy sth.'	↔	*wikna-**hay***	'to buy sth. for sb.'
131.	APPL	*suh*	'to fall'	↔	*suh-**hay***	'to fall for the benefit of sb.'

Ainu has several more or less productive causative suffixes, one of which is *-e* (132-133). The language also possesses a phonologically similar prefix *e-* which serves as voice marking in the applicative voice (134-135). While the reverse resemblance described for Alamblak and Hup (and possible also for Mosetén) can be explained in terms of diachrony, the reverse resemblance in Ainu is likely the result of coincidental phonological convergence. The suffix *-e* has two allomorphs, *-re* and *-te*, and Bugaeva (2015: 475) notes that the three allomorphs likely can be traced back to Proto-Ainu **de* of unknown origin (Vovin 1993). In contrast, Nonno (2015) argues that the allomorphs in question can be traced back to the verb **ki* 'to do, perform, act' which has grammaticalised and subsequently undergone a series of assimilation, i.e. **ki* > **-ki* > *-ke* > *-te* > *-re* > *-e* (id.: 17); e.g. **nukar-ki* > **nukar-ke* > **nukar-te* > **nukar-re* > *nukar-e* (cf. ex. 133; id.: 15). The causative suffix *-ke* is retained in the language, but generally treated separately from *-e/-re/-te* (vid., e.g., Bugaeva 2015 passim). The use of *-ke* as causative marking has already been illustrated in the discussion of type 1a syncretism in §3.2.1 (vid. exx. 72-73 p. 88). In any case, the diachronic origin of the suffix *-e* seems to differ from that of the prefix *e-* which "probably originated in the relational noun with the meaning 'head' that is retained as a lexical prefix *e-* '(its) head/top'" (id.: 762).

Ainu (Bugaeva 2015: 445; Alpatov et al. 2007: 1770; Bugaeva 2004: 44; ibid.)

132.	CAUS	*kay*	'to break'	↔	*kay-**e***	'to break sth.'
133.	CAUS	*nukar*	'to see sth.'	↔	*nukar-**e***	'to make sb. see sth.'
134.	APPL	*mina*	'to laugh'	↔	***e**-mina*	'to laugh about/at sth.'
135.	APPL	*rayap*	'to be delighted'	↔	***e**-rayap*	'to be delighted about sth.'

Last but not least, causative-applicative type 3 syncretism has been attested in the language isolate Nivkh (EA). In this language the suffix *-u* serves as causative voice marking on its own with approximately 15 verbs having a word-initial sonorant (136-137) and in combination with a plosive-fricative alternation with 40 additional verbs with a word-initial plosive; e.g. *pil-* 'to be big' ↔ *vil-u-* 'to make sth. (be) big' (Otaina & Nedjalkov 2007: 1721f.; Nedjalkov & Otaina 2013: 132f.). The phonologically similar prefix *u-* can be used with (at most) a handful of verbs as reciprocal marking (138-139). Note that the prefix *u-* has an allomorph *v-* found with "about 30 relic verbs" (id. 2007: 1726ff.; 2013: 107f.), and also that the prefix often is in variation with a prefix in non-reciprocal counterpart verbs (typically *i-* or *j-*) as evident in the examples below. As in the case of the Ainu affixes *-e* and *e-*, the reverse resemblance between Nivkh *-u* and *u-* is most likely coincidental.

Nivkh (Otaina & Nedjalkov 2007: 1726ff.; Nedjalkov & Otaina 2013: 133)[8]

136.	CAUS	*vaχt'-*	'to tear'	↔	*vaχt'-**u***	'to tear sth.'
137.	CAUS	*veta-*	'to get dressed'	↔	*veta-**u***	'to dress sb.'
138.	RECP	*i-γ-*	'to kill sb.'	↔	***u**-γ-*	'to kill e.o.'
139.	RECP	*(i-)ŋali-*	'to resemble sb.'	↔	***u**-ŋali-*	'to resemble e.o.'

A seventh language in the language sample, the Tibeto-Burman language Anong (EA), seems to possess something akin to type 3 causative-reflexive syncretism, yet the extent of the phenomenon in the language is difficult to ascertain due to lack of data. Sun & Liu (2009: 82) state that the reflexive suffix *-ɕu³¹* has the two allomorphs *-ʂʅ³¹* and *-sɛ³¹*.[9] The former allomorph *-ʂʅ³¹* is phonologically identical to the causative

[8] Note that the verbs in (139) are given as *ŋala-* and *u-ŋala-* by Nedjalkov & Otaina (2013: 107).

[9] The superscript numerals here denote tone, while the grapheme ⟨ɭ⟩ represents a lateral approximant /l/ after retroflex consonants (Sun & Liu 2009: 24).

prefix *ʂʅ³¹-* (ibid.). However, Sun & Liu describe reflexive marking in Anong as "unproductive," in some cases having been "fossilized with the verb root," and "seems to include some middle marking" or "fossilized remains of middle marking" (ibid.). As no clear (glossed and translated) reflexive examples of the suffix *-ʂʅ³¹* are given by Sun & Liu, it is not clear whether or not the suffix qualifies as reflexive voice marking according to the reflexive definition employed in the present study (§2.2.3).

4 Simplex voice syncretism

As described in the beginning of the previous chapter, simplex voice syncretism refers to formal verbal marking shared by two of the seven voices of focus in this study (i.e. applicative, causative, anticausative, reflexive, reciprocal, passive, antipassive). There are logically 21 possible patterns of such simplex voice syncretism (vid. tab. 7 p. 70) when it is assumed that each of the voices can potentially have the same voice marking as one other voice.[10] These patterns are discussed and exemplified in this chapter, in which they are divided into four essentially arbitrary groupings to facilitate their discussion in a convenient manner: simplex middle syncretism (§4.1), simplex antipassive syncretism (§4.2), simplex causative syncretism (§4.3), and simplex applicative syncretism (§4.4).

Middle syncretism	**Antipassive syncretism**	**Causative syncretism**	**Applicative syncretism**
REFL-RECP	ANTP-REFL	CAUS-APPL	APPL-PASS
REFL-ANTC	ANTP-RECP	CAUS-PASS	APPL-ANTP
RECP-ANTC	ANTP-ANTC	CAUS-ANTP	APPL-REFL
PASS-REFL	PASS-ANTP	CAUS-REFL	APPL-RECP
PASS-RECP		CAUS-RECP	APPL-ANTC
PASS-ANTC		CAUS-ANTC	

As already defined in §3.1.1, middle syncretism refers to voice syncretism involving at least two of the following four voices: passive, reflexive, reciprocal, anticausative. In this chapter, it refers more specifically to simplex patterns involving exactly two of the aforementioned voices. In turn, antipassive syncretism here refers

[10] Nedjalkov (2007d) approaches the syncretism of reciprocal diathetic marking in a similar manner: "If we take into account the most prominent meanings of polysemous reciprocal markers, i.e. reflexive, sociative and iterative, and make up a calculus of their possible combinations (subject to the natural condition that each combination contains the reciprocal meaning), we obtain eight logically possible types" (id.: 249).

to simplex voice syncretism involving the antipassive voice and one of the voices associated with middle syncretism – but not the causative and applicative voice. By contrast, causative syncretism refers to any pattern of simplex syncretism involving the causative voice, while applicative syncretism refers to simplex syncretism involving the applicative voice and one other voice except the causative voice.

As noted further above, the four groupings of voice syncretism listed above are essentially arbitrary but serve to provide a convenient overview of the 21 logically possible patterns of simplex voice syncretism. Moreover, observe that the groupings reflect the frequency of the various simplex patterns among the languages in the language sample to some extent: patterns of middle syncretism are generally more frequent than other patterns of syncretism cross-linguistically, while patterns of applicative syncretism tend to be less frequent than other patterns. However, note that there are a handful of exceptions to this generalisation; most notably, causative-applicative syncretism is more frequent than many patterns of middle and antipassive syncretism. A more detailed overview of cross-linguistic frequency follows in chapter 6. Furthermore, note that the order in which two voices are listed in any given simplex pattern of syncretism is entirely arbitrary and does not denote any particular diachronic development. Thus, for instance, the pattern called "causative-passive" in §4.3.2 could just as well have been called "passive-causative," and the term itself does not necessarily indicate that the use of a causative marker has extended its functional scope to cover passivity (or vice versa). Diachrony of voice syncretism is only briefly addressed in this this chapter, while it is treated more extensively in chapter 7.

4.1 Middle syncretism

As noted in the beginning of this chapter, simplex middle syncretism here refers to voice syncretism involving exactly two of the following four voice: passive, reflexive, reciprocal, anticausative. Thus, six patterns of middle syncretism are discussed in the following sections: reflexive-reciprocal (§4.1.1), reflexive-anticausative (§4.1.2), reciprocal-anticausative (§4.1.3), passive-reflexive (§4.1.4), passive-reciprocal (§4.1.5), and passive-anticausative (§4.1.6). These patterns are among the most common patterns of voice syncretism among the world's languages (§6.3.1), and the linguistic literature on middle syncretism is accordingly vast, although the said

syncretism has generally been discussed rather implicitly (§3.1.1). Consequently, for practical reasons it is not feasible to describe and illustrate middle syncretism in all the languages in which it is attested in the language sample of the present study nor is it possible to address and discuss all previous research on the said syncretism. On the contrary, as middle syncretism is already a well-known phenomenon in the literature, the various patterns of the syncretism are only briefly described and exemplified in the following sections.

4.1.1 Reflexive-reciprocal

Reflexive-reciprocal syncretism is well-attested cross-linguistically (e.g. Geniušienė 1987, Knjazev 1998, Nedjalkov [ed.] 2007a, i.a.), although the extent of its prevalence has occasionally been questioned. For instance, Creissels (2016: 66) argues that "[t]he reflexive-reciprocal syncretism does not seem to be particularly widespread in the languages of the world, but it is found in several branches of Indo-European (Romance, Slavic, etc.)." Nevertheless, reflexive-reciprocal syncretism is by far the most frequently attested pattern of voice syncretism attested in the language sample of the present study. Indeed, the syncretism in question is attested in close to one fifth of all the languages in the sample, in other words 49 languages; only one of which belongs to the Indo-European language family, Eastern Armenian. The reflexive-reciprocal syncretism in the languages is primarily of type 1, though eight languages feature reflexive-reciprocal type 2 syncretism. As already noted in the preceding section, it is not feasible to address each of the 49 languages separately in this section, but for illustrative purposes reflexive-reciprocal syncretism is illustrated for one language below.

In the Algic language Arapaho (NA) reflexive-reciprocal syncretism is characterised by the suffix *-etí* as seen in the voice relation below (140↔141). The voice in (141) qualifies as either reflexive (a) or reciprocal (b) depending on context. As argued by Cowell & Moss Sr. (2008), "[w]hen the person inflection is plural, either meaning can be possible and only context makes clear which is intended" (id.: 140). By comparison, the verb *henéétetí3-etí-noo* marked by the first person singular suffix *-noo* can only have a reflexive reading (i.e. 'I am speaking to myself;' id.: 139). Note that the underlying verbal stem in both (140) and (141) is the same, *eeneti3* 'to speak

to sb.' The prefixal part *hen-* is the result of an "initial change" (IC), "a morphophonological process that serves grammatically to indicate either present tense and ongoing aspect or present perfect tense and aspect in affirmative order verbs and conjunct iterative verbs" (id.: 73); while the differences in pitch are due to additional morphophonological processes (id.: 22ff.).

Arapaho (Cowell & Moss Sr. 2008: 110, 140)

140. *heneenéti3-é3en*
IC.speak-1SG/2SG
'I am speaking to you.'

141. *henéénetí3-**etí**-no'*
IC.speak-REFL/RECP-DU
a. 'We are speaking to ourselves.'
b. 'We are speaking to each other.'

Other examples of reflexive-reciprocal syncretism have also been provided in the preceding chapter. Reflexive-reciprocal type 1 syncretism is exemplified for the Burraran language Gurr-Goni (AU) and the West Bougainville language Rotokas (PN) in §3.2.1 (vid. exx. 56-61 p. 86), while reflexive-reciprocal type 2 syncretism is exemplified for the North Halmaheran language Tidore (PN), for the Northern Pama-Nyungan language Uradhi (AU), for Bolivian Quechua (SA), and for the Hokan language Yurok (NA) in §3.2.2 (vid. ex. 107 p. 93). Additional examples of the syncretism can be found in §§5.1–5.2.2, §5.3.1, and §5.4 in the next chapter.

It is generally assumed that reflexive-reciprocal syncretism has a reflexive origin meaning that the syncretic voice marking in question originally had a reflexive function before eventually developing a reciprocal function. However, the opposite development has been observed in a number of languages as well. The diachrony of reflexive-reciprocal syncretism is explored in more detail in §7.1.1 and §7.2.1.

4.1.2 Reflexive-anticausative

Reflexive-anticausative syncretism is also very prevalent among the languages of the language sample in the present study, being attested exclusively as type 1 syncretism in 33 languages. The syncretism is exemplified for one of these languages in this section, namely in the Torricelli language Yeri (PN). In this language the prefix *d-* serves as voice marking in the reflexive (142↔143), anticausative (144↔145), and reciprocal voices (vid. exx. 374-375 p. 158). The lack of a broader context in (144)

makes the example somewhat opaque. However, the author explicitly states that the verb in the example "involves the act of hanging an item" (id.: 370), in this case an implicit item (marked by the infix <*he*> language-specifically). Note that the difference in the glossings of the prefix *w-* in (144) and (145, 143) is not a mistake: the prefix is syncretic in the language and can indicate both a third personal female person and third person plural persons.

Yeri (Wilson 2017)

142. *n-altou* *yewal* *w-ei=de-n* *n-aruba-i-bai*
3SG.M-cover.REAL eye REL-PL=3-SG.M 3SG.M-do.well.REAL-PL-RDPL
'He covered his eyes very very carefully.' (id.: 451)

143. *te-Ø* *w-**d**-altou*
3-SG.F 3SG.F-REFL-cover.REAL
'She covered herself.' (id.: 369)

144. *peigɨlia-i* *w-goba* *w-a<he>wɨl*
some-PL 3PL-bend.in.half.REAL 3PL-hang.REAL<SG.F>
'Some just break and hang it.' (id.: 370)

145. *hɨwol* *wanagawɨl* *yot-ua-Ø,* *w-**d**-awɨl*
breadfruit breadfruit DEM-DIST-SG.F 3SG.F-ANTC-hang.REAL
'The breadfruit's fruit there, it hangs.' (ibid.)

More examples of reflexive-anticausative syncretism are provided in §§5.1–5.2.2, §5.3.2 and §5.4. The syncretism in question commonly has a reflexive origin (§7.1.2), though an anticausative origin has been proposed for reflexive-anticausative syncretism in at least one language, Indo-European Hittite (§7.3.1).

4.1.3 Reciprocal-anticausative

Like reflexive-reciprocal and reflexive-anticausative syncretism, reciprocal-anticausative syncretism is well-attested cross-linguistically and can be found in 22 of the languages in the language sample of the present study. Eighteen of the languages feature reciprocal-anticausative type 1 syncretism, while four languages feature reciprocal-anticausative type 2 syncretism. The former type of syncretism is illustrated for the Northern Chukotko-Kamchatkan language Chukchi below by a reciprocal

voice relation (146↔147) as well as an anticausative voice relation (148↔149). Evidently, the suffix *-tku/-tko* serves as voice marking both in the reciprocal voice (147) and in the anticausative voice (149); the vowel variation in the suffix is the result of allomorphy due to vowel harmony (Dunn 1999: 48). Nedjalkov (2006: 221f.) calls the suffix "the most syncretic suffix in Chukchi," noting that it can also be found in the antipassive and reflexive voices (vid. exx. 431-434 p. 165).

Chukchi (Nedjalkov 2006: 222)

146.	*ommačajpə-nen*	147.	*ommačajpə-**tko**-ɣʔat*
	hug-AOR.3SG:3SG		hug-RECP-AOR.3PL
	'He hugged him.'		'They hugged each other.'
148.	*ejpə-nin*	149.	*ejpə-**tku**-ɣʔi*
	close-AOR.3SG:3SG		close-ANTC-AOR.3SG
	'He closed it.'		'It closed.'

Additional examples of reciprocal-anticausative type 1 syncretism in other languages are given in §5.1, §5.2.2, and §5.4 in the next chapter. Reciprocal-anticausative type 2 syncretism, on the contrary, is not exemplified elsewhere, for which reason it is illustrated for the Central Arawakan language Paresi-Haliti (SA) below (150-153). In this language the suffix *-kakoa* serves as voice marking in the reciprocal voice (150-151) while the suffix *-oa* serves as voice marking in the anticausative voice (152-153); note that the stem-final vowel /a/ in the latter examples is deleted "when suffixes are attached" (Brandão 2014: 68f.). Brandão argues that the suffix *-kakoa* "may be further analyzed as formed by reciprocal *-kak* and the middle voice form *-oa*" (id.: 259) which reflect the reciprocal suffix **-k^hak^h* and the reflexive suffix **-wa* reconstructed by Wise (1990) for Proto-Arawakan, respectively. Observe that the suffix *-oa* retains the reflexive function as well; cf., e.g., *fehanatya* 'to bless sb.' ↔ *fehanaty-oa* 'to bless self' (Brandão 2014: 251).

Paresi-Haliti (Brandão 2014: 256; 367, 372; 248f.; 250)

150.	RECP	*zakolo*	'to hug sb.'	↔	*zakolo-**kakoa***	'to hug e.o.'
151.	RECP	*xaka*	'to shoot sb.'	↔	*xaka-**kakoa***	'to shoot e.o.'
152.	ANTC	*txiholatya*	'to open sth.'	↔	*txiholaty-**oa***	'to open'
153.	ANTC	*etolitsa*	'to lay sth. down'	↔	*etolits-**oa***	'to lie down'

Additional examples of reciprocal-anticausative syncretism are provided in §5.1, §5.2.2, and §5.4 in the next chapter. As briefly mentioned in the preceding two sections, it is well-known that reflexive voice marking can develop both reciprocal and anticausative functions. By contrast, evidence for voice development from reciprocal to anticausative and vice versa is seemingly more rare (for more information, see §7.2.2 and §7.3.2).

4.1.4 Passive-reflexive

Passive-reflexive syncretism is attested in nineteen languages in the language sample of this study; in two languages as type 2 syncretism, and in the remaining languages as type 1 syncretism. The latter type of syncretism is here illustrated for the Tangkic language Kayardild (AU) in which the suffixal lengthening of the last vowel of a verbal stem characterises both the passive and reflexive voices (154↔155) as well as the anticausative voice (vid. exx. 388-389 p. 159). Additional examples of passive-reflexive type 1 syncretism can be found in sections §5.1, §5.2.1, §5.3.1, and §5.4 in the next chapter.

Kayardild (Evans 1995)

154. *ngada* *kurulutha* *bala-tha* *niwan-ji* *wangalk-ur*
1SG.NOM hard/intensely hit-ACT him-LOC boomerang-PROP
'I hit him hard with the boomerang.' (id.: 307)

155. *ngada* *bala-**a**-ja* *karwa-wuru*
1SG.NOM hit-PASS/REFL-ACT club-PROP
a. 'I was hit with a club.' (id.: 352)
b. 'I hit myself with a club.' (ibid.)

Passive-reflexive type 2 syncretism was briefly mentioned in relation to the language isolate Mosetén (SA) in §3.2.4 but is properly exemplified here. As described in the aforementioned section, the suffix *-ti* in this language can serve as voice marking not only in the reciprocal voice, but also in the reflexive (158-159) and passive voices, in the latter voice in combination with the affix *-ja/ja-* (156-157). The latter affix generally appears as a prefix (156) but can appear as a suffix (157) on verbs featuring the verbal stem marker *-yi* (Sakel 2004: 229). Sakel speculates that the affix in

question may "have developed from a causative with the form *ja-*, though synchronically such a form does not exist" (id.: 303).

Mosetén (Sakel 2004: 155, 253; 42, 304; 137; 194, 251)[11]

156.	PASS	*ji-ti-*	'to send sth.'	↔	***ja**-ji-ti-**ti**-*	'to be sent [by sb.]'
157.	PASS	*tyáph-yi-*	'to grab sth.'	↔	*tyáph-**já**-yi-**ti**-*	'to be grabbed [by sb.]'
158.	REFL	*jo-yi-*	'to serve sth.'	↔	*jo-yi-**ti**-*	'to serve self'
159.	REFL	*kaw-i-*	'to see sth.'	↔	*kaw-i-**ti**-*	'to see self'

Passive-reflexive syncretism is generally believed to evolve from reflexivity through an intermediary stage of anticausativity (§7.1). However, it should be noted that there are some languages in which passive-reflexive voice marking seemingly does not have an anticausative function nor traces thereof for which the abovementioned scenario is less plausible, as discussed in §7.1.3. Moreover, as described in §7.4.1, there is some sparse evidence for a passive origin of passive-reflexive syncretism in a few languages.

4.1.5 Passive-reciprocal

Passive-reciprocal syncretism is attested in fifteen languages in the language sample of the present study, and a relatively high portion of these attestation represent type 2 syncretism. More specifically, passive-reciprocal type 2 syncretism is attested in six languages, while the remaining nine languages feature passive-reciprocal type 1 syncretism. Thus, in terms of type 1 syncretism, passive-reciprocal syncretism is the least frequent pattern of middle syncretism in the sample. Both types of passive-reciprocal syncretism are illustrated below.

Passive-reciprocal type 1 syncretism is illustrated for the East Chadic language Baraïn below by the voice relation below (160↔161). As seen in these examples, the suffix *-ɟó* evidently serves as voice marking in both the passive (a) and reciprocal

[11] Note that the verbs *ji-ti-*, *tyáph-yi-*, and *jo-yi-* appear as *ji-te-*, *tyáph-ye-*, and *jo-ye-* in the original source (Sakel 2004), respectively, because the stem-final /i/ becomes /e/ before "transitive cross-reference forms which do not trigger vowel harmony" (id.: 45).

voices (b) in the said language. Lovestrand (2012: 150) also addresses a reflexive function of this suffix but concludes that it is "less natural" (and the only potential example provided is preceded by a question mark), noting instead that reflexivity in the language is expressed periphrastically (id.: 148f.). Consequently, a reflexive function of the suffix in question is therefore not recognised in this study. More examples of passive-reciprocal type 1 syncretism are provided in §5.1, §5.3.1, and §5.4 in the next chapter.

Baraïn (Lovestrand 2012)

160. *Músà ɲár-gà Mám:àt*
NAME search-OBJ.3.M NAME
'Moussa is looking for Mammat.' (id.: 137)

161. *nándáŋgá ɲár-ō-**ɟó***
children search-PRF-RECP/PASS
a. 'The children were looked for.' (id.: 150)
b. 'The children looked for each other.' (ibid.)

Next, passive-reciprocal type 2 syncretism is exemplified below by the Central Cushitic language Khimt'anga (AF) in which the suffix *-ʃit/-ʃɨt/-(j)it* serves as voice marking in both the passive (162-163) and reciprocal voices, in the latter accompanied by reduplication (164-165). Note that the schwa in the reduplicated forms is simply a "linking vowel" (Belay 2015: xxi). Interestingly, as will become evident in §4.3.1, in Khimt'anga reduplication is also used to differentiate the causative and applicative voices which are otherwise both marked by the suffix *-s* (vid. exx. 225-228 p. 127).

Khimt'anga (Belay 2015: 239)

162.	PASS	*k'ɨw-*	'to kill sb.'	↔	*k'ɨw-**ɨʃit-***	'to be killed [by sb.]'
163.	PASS	*kəβ-*	'to help sb.'	↔	*kəβ-**ɨʃit-***	'to be helped [by sb.]'
164.	RECP	*k'ɨw-*	'to kill sb.'	↔	***k'ɨw-ə-**k'ɨw-**ɨʃit-***	'to kill e.o.'
165.	RECP	*kəβ-*	'to help sb.'	↔	***kəβ-ə-**kəβ-**ɨʃit-***	'to help e.o.'

The diachrony of passive-reciprocal syncretism is not as well known as the diachrony of the patterns of syncretism discussed in the preceding sections. As noted in §7.2.3, currently there does not appear to be any concrete evidence for reciprocal

voice marking developing a passive function, and there is only scarce evidence for passive voice marking developing a reciprocal function from a single language, as further described in §7.4.2. However, it is well-attested that passive-reciprocal syncretism in many Indo-European languages ultimately has a reflexive origin (§7.1).

4.1.6 Passive-anticausative

Passive-anticausative syncretism is attested in seventeen languages in the language sample of this study, exclusively as type 1 syncretism like the reflexive-anticausative syncretism discussed in §4.1.2. The syncretism is illustrated for the Tibeto-Burman language Dhimal (EA) below in which the "middle morpheme" *-nha* serves as voice marking not only in the passive (166↔167) and anticausative voices (168↔169), but also in the reflexive voice (e.g. *ce:-* 'to cut sth.' ↔ *ce:-nha-* 'to cut self;' J. King 2009: 527). According to Khatiwada (2016: 239), the passive use of the suffix has likely evolved under the influence of the Indo-Aryan language Nepali and can thus be regarded as a recent innovation. Additional examples of passive-anticausative syncretism are provided from other languages in §5.1, §5.2.1, and §5.4.

Dhimal (J. King 2009)

166. *kalau* *insa* *cuma-hi* *la*
so like.that take-PST MIR
'And so he took him' (id.: 459)

167. *hiso* *cuma-**nha**-hi* *ede* *jamal*
whither take-PASS-PST this child
'Where was this child taken?' (ibid.)

168. *me-ta* *pundhui* *oŋ-gha*
fire-LOC brain cook-PST.1SG
'I cooked the brain in the fire.' (id.: 604)

169. *tui* *rem-pha* *oŋ-**nha**-hi*
egg be.good-do cook-ANTC-PST
'The egg cooked well.' (id.: 189)

As discussed in §7.1, §7.1.2, and §7.3.3 it is well-known that reflexive voice marking can develop an anticausative function and subsequently a passive function. However, it is worth noting that a passive origin has been proposed for passive-anticausative syncretism in a few languages as well, as further discussed in §7.4.3.

4.2 Antipassive syncretism

As noted in the beginning of this chapter, simplex antipassive syncretism refers to formal verbal marking shared by the antipassive voice and one of the voices associated with middle syncretism discussed in the preceding sections: antipassive-reflexive (§4.2.1), antipassive-reciprocal (§4.2.2), antipassive-anticausative (§4.2.3), and passive-antipassive (§4.2.4). In contrast, causative-antipassive syncretism is discussed in relation to causative syncretism (§4.3.3), while applicative-antipassive syncretism is discussed in relation to applicative syncretism (§4.4.2). Interestingly, simplex patterns of voice syncretism involving the antipassive voice very often form part of more extensive complex syncretism, for which reason many of the languages attested with antipassive syncretism in the language sample of the present study are discussed not in this chapter, but in the next chapter on complex voice syncretism. Nevertheless, all four simplex patterns of antipassive syncretism are explicitly discussed and exemplified in the next sections.

Antipassive syncretism has received less attention in the typological literature than middle syncretism, although the phenomenon has been acknowledged at least since the late 1960s. For instance, Nedjalkov & Sil'nickij (1969: 40ff.) provide early cross-linguistic examples of syncretism between antipassive (*абсолютивно-потенциальное* "absolutive-potential") and anticausative (*декаузативное* "decausative") voice marking. Furthermore, Polinsky (2017) has strongly argued that "[i]n the majority of languages that mark the antipassive verbally, the affix indexes other categories as well" and often the "antipassive is syncretic with detransitivizing affixes such as anticausative, reflexive/reciprocal, middle, or passive markers" (id.: 314); see also Heaton (2020: 139). However, observations on antipassive syncretism remain largely implicit and sporadic as will become evident in the following sections, though typological interest in the phenomenon has been on the rise during this millennium.

4.2.1 Antipassive-reflexive

In a rare explicit typological study of antipassive syncretism, Janic (2010) provides a brief cross-linguistic overview of antipassive-reflexive syncretism in which she argues that "[i]n addition to Australian [i.e. Northern Pama-Nyungan] and Slavic languages, Romance, Cariban, Tacanan, Manding [i.e. Western Mande], South Caucasian [i.e. Kartvelian], and [Northern] Chukotko-Kamchatkan languages can be mentioned among language families in which the reflexive-antipassive polysemy is attested" (id.: 158). However, the antipassive-reflexive syncretism discussed by Janic for the Kartvelian language Laz, the Slavic languages Bulgarian and Polish (all three EA), and the Western Mande language Bambara (AF) is not recognised in the present study.

Firstly, the purported antipassivity of the prefix *i-* in Laz is uncertain. Janic (and also, e.g., Sansò 2017: 193) argue that the said prefix has an antipassive function based on Lacroix' (2009: 467; 2012: 181f.) discussion of the prefix in relation to a single verb, *(o-)gur* ↔ *i-gur*. Lacroix translates these verbs 'to teach sth. to sb.' and 'to learn sth.,' indicating a reflexive rather than antipassive function of the prefix, at least with the verb in question (i.e. 'to teach self sth.'). Note that Lacroix is cautious in his description of *i-* as antipassive himself, admitting that it cannot be "analysed as a prototypical antipassive" (ibid.). Secondly, the antipassives and reflexives in Bulgarian, Polish, and Bambara do not feature verbal voice marking and thus lie beyond the scope of the present study. However, antipassive-reflexive syncretism is attested in the Slavic language Russian (§5.4) and the Western Mande language Soninke (e.g. *còró* 'to cook sth.' ↔ *còr-é* 'to cook [sth.],' *bóorà* 'to undress sb.' ↔ *bóor-è* 'to undress self;' note that the difference in the tone of the suffix *-e* is not inherent to the voice marking itself; Creissels 2010: 10).

By contrast, the remaining cases of antipassive-reflexive syncretism mentioned by Janic (2010) are readily acknowledged in the present study, including antipassive-reflexive syncretism characterised by the prefix *öt-* in the Cariban language Ye'kwana (SA; see also, e.g., Gildea et al. 2016), by the suffixes *-gali* and *-:dji* in the Northern Pama-Nyungan languages Warrungu and Yidiny (AU; see also, e.g., Terrill 1997), by the circumfixes *k(a)-…-ti* and *xa-…-ki* in the Tacanan languages Cavineña and Ese Ejja (SA), and by the suffix *-tku* in the Northern Chukotko-Kamchatkan language Chukchi (EA). Additionally, antipassive-reflexive syncretism is addressed briefly by

Vigus (2016: 75ff.) in the language isolate Oksapmin (PN) characterised by the prefix *t-* and by Sansò (2017: 193ff.) for the Na-Dene language Tlingit (NA) and the Turkic language Tuvan (EA) characterised by the affixes *dzi-/da-* and *-n*, respectively. Several of the voice markers mentioned here also have additional voice functions, as further discussed in the following sections.

Ese Ejja, Chukchi, and Oksapmin are also included in the language sample of the present study. In addition to these languages, antipassive-reflexive syncretism has been attested in seven other languages of the sample: the Turkic language Tatar, the Permic language Udmurt (both EA), the Gunwinyguan language Nunggubuyu, the Mangarrayi-Maran language Mangarrayi (both AU), the Oto-Manguean language Acazulco Otomí, the Southern Iroquoian language Cherokee (both NA),[12] and the Katukinan language Katukina-Kanamari (SA). Evidently, the only macroarea in which antipassive-reflexive syncretism has hitherto not been attested is Africa. The antipassive-reflexive syncretism in each of the ten languages forms part of more complex voice syncretism, for which reason the languages are described and discussed in more detail in the next chapter. Nevertheless, for illustrative purposes, fully glossed examples demonstrating antipassive-reflexive syncretism in Ese Ejja are provided below in the form of an antipassive voice relation (170↔171) and a reflexive voice relation (172↔173). As seen in these examples, the circumfix *xa-…-ki* can serve as voice marking in both the antipassive (171) and reflexive voices (173). As noted by Janic (2010: 162), the circumfix *k(a)-…-ti* in the closely related language Cavineña is similar to the circumfix *xa-…-ki* Ese Ejja in this respect; e.g. Cavineña *peta* 'to look at sth.' ↔ *ka-peta-ti* 'to look at [sth.]' or 'to look at self' (Guillaume 2008: 268). Furthermore, note that the circumfix in Ese Ejja can also serve as voice marking in the reciprocal and anticausative voices (vid. exx. 427-430 p. 164).

[12] Note that Heaton (2017: 169) hints at antipassive-reflexive syncretism in Queretaro Otomí and Cherokee but does not pursue the matter further, only remarking that the languages have "antipassive uses for middle voice morphemes."

Ese Ejja (Vuillermet 2012: 520ff.)

170. *ekwaa* *motor* *ishwa-'axa-naje*
1EXCL.ERG motorboat wait-FRUST-PST
'We vainly waited for the motorboat.'

171. *jama=ya* *esea* *ani-ani,* ***xa****-ishwa-****ki****-ani-ani*
so=FOC 1INCL.ABS sit-IPFV MID-wait-MID-IPFV-PRS
'So we usually sit and wait.'

172. *eyaya* *ekwe=bakwa* *jabe-je*
1SG.ERG 1SG.POSS=child comb-FUT
'I will comb my child.'

173. *epona* ***xa****-jabe-****ki****-ani*
NPF-woman.ABS MID-comb-MID-PRS
'The woman is combing herself.'

In terms of diachrony, it seems that antipassive-reflexive syncretism generally has a reflexive origin, as discussed in more detail in §7.1 and §7.1.4, while there is currently no evidence for antipassive voice marking developing a reflexive function.

4.2.2 Antipassive-reciprocal

Antipassive-reciprocal syncretism has received less attention in the literature than the antipassive-reflexive syncretism discussed in the previous section, through antipassive-reciprocal syncretism appears to be slightly more prevalent cross-linguistically, being attested in eleven languages in the language sample of the present study. Nevertheless, previous observations on the phenomenon can be found sporadically. Illustratively, Janic (2010) briefly notes the existence of antipassive-reciprocal syncretism in several of the languages addressed in the previous section, including the Cariban language Ye'kwana (SA), the Tacanan languages Cavineña and Ese Ejja (both SA), and the Northern Chukotko-Kamchatkan language Chukchi (EA). Likewise, Sansò (2017) attests the said syncretism in the Na-Dene language Tlingit (NA) also mentioned in the preceding section, as well as in the Surmic language Tirmaga (AF) characterised by the suffix *-inɛ(n).* As discussed later in §7.2.4, antipassive-reciprocal syncretism has additionally been observed in a number of Oceanic and Bantu languages. In addition to Ese Ejja and Chukchi, antipassive-

reciprocal syncretism is attested in nine other languages in the language sample, as mentioned above, eight of which were also mentioned in relation to antipassive-reflexive syncretism in the preceding section: the Turkic language Tatar, the Permic language Udmurt (both EA), the Gunwinyguan language Nunggubuyu, the Mangarrayi-Maran language Mangarrayi (both AU), the Oto-Manguean language Acazulco Otomí (NA) and the Katukinan language Katukina-Kanamari (SA). The remaining two languages are the Eskimo language Central Alaskan Yupik (NA) and the Kordofanian language Lumun (AF). Antipassive-reciprocal syncretism is illustrated for Lumun and Tatar below, while it is addressed and described for the other nine languages in the next chapter.

In Lumun there are two affixes which can serve as voice marking in both the antipassive and reciprocal voices: "*(a)rɔ* replaces a final or last vowel *ɔ* or comes after a final or last vowel *a*," while "*ttɔ* is typically attached to stems with a final or last *ɛ*" (Smits 2017: 550). The former affix has the allomorphs <*ar*>, <*rɔ*> and *-rɔ* (ibid.), while the latter affix has the allomorphs *-ttɔ* and <*ttɔ*> (id.: 551). The antipassive and reciprocal functions of the former affix are illustrated in the antipassive (174↔175) and reciprocal voice relations (176↔177) below; while the said functions of the latter affix is exemplified here: *a.kkwɛ* 'to beat sb.' (id.: 735) ↔ *á.kkwɛ́-ttɔ* 'to beat [sb.]' (id.: 559), *accɛ* 'to lick sb.' ↔ *accɛ-ttɔ* 'to lick e.o.' (id.: 551). Note that the tonal differences in the various examples are related to the overall tone system of Lumun and do not form part of the voice marking itself.

Smits (2017) explicitly addresses the antipassive-reciprocal syncretism in Lumun, remarking that the use of the abovementioned affixes "does not only give an 'each other'-reading, but also a non-reciprocal reading with a human object that is not (nominally or pronominally) referred to, i.e. an antipassive" (id.: 558). Smits makes it clear that the verb in example (175) does not have the meaning *'to take each other' but denotes a river taking a human semantic participant which cannot be expressed syntactically (ibid.). Observe that the word *tíaʈ~ʇɪak* functions as an adverb indicating intensity or repetition (hence Smits' idiomatic translation 'to take many people's lives' and the gloss 'very'). As mentioned later in §7.2.4, there is some evidence suggesting that the reciprocal functions of the abovementioned affixes in Lumun predate the antipassive function, yet the matter remains unresolved for the time being. Reciprocal

voice marking developing an antipassive function is otherwise a relatively common phenomenon, as further argued in the aforementioned section.

Lumun (Smits 2017)

174. *akka.ân* *a-ʈʈɔ́má* *p-á.ík* *p-á.nɛ́kɔ́-n*
why CONJ-friend C-be.PRS C-take.IPFV-1OBJ
'Why, my friend is carrying me.' (id.: 742)

175. *tʊɛ* *t-ɔká.t* *t-ɔ́nɔ́* *ŋəʃɪ* *ŋ-ɔppɔt* *ɪ-a.nɛ́k<**ar**>ɔ* *tíaʈ~ʈɪak*
river C-be.PFV C-have water C-many RESTR-take.IPFV<RECP> very
'There was a river that had a lot of water and that took many people's lives.'
(lit. '[…] that took very;' id.: 558)

176. *kəllán* *k-ɪna* *lɔ́n* *l-ɔppɔ́t*
old.woman C-know.IPFV words/things C-many
'The old woman knows many things.' (id.: 573)

177. *ɔ-kín* *ʈ-ína-**rɔ*** *acín-ʈa*
PERS-3PL C-know.IPFV-RECP when-Q
'When will they get to know each other?' (id.: 505)

Antipassive-reciprocal syncretism is characterised by the suffix *-š* in Tatar, as shown in the examples below (178-181). The suffix is generally associated with reciprocity, but it is widely described as also having a function that qualifies as antipassive (see, e.g., Zinnatullina 1969: 192f.; 1993: 179; Nedjalkov 2007d: 297f.; Burbiel 2018: 490).

Tatar (Nedjalkov 2007d: 298; ibid.; 295; 318)

178. ANTP *alda-* 'to deceive sb.' ↔ *alda-**š***- 'to deceive [sb.]'
179. ANTP *jaz-* 'to write sth.' ↔ *jaz-**əš***- 'to write [sth.]'
180. RECP *üb-* 'to kiss sb.' ↔ *üb-**eš***- 'to kiss e.o.'
181. RECP *sug-* 'to hit sb.' ↔ *sug-**əš***- 'to hit e.o.'

As already noted further above, in §7.2.4 it is demonstrated that antipassive-reciprocal syncretism commonly has a reciprocal origin. By contrast, currently there is no convincing evidence for antipassive voice marking developing a reciprocal function.

4.2.3 Antipassive-anticausative

As noted in §4.2, Polinsky (2017: 314) argues that voice marking in the antipassive voice in many languages "is syncretic with detransitivizing affixes such as anticausative," yet typological literature on antipassive-anticausative syncretism remains scarce and mostly consists of sporadic observations. For example, as mentioned in the same section, Nedjalkov & Sil'nickij (1969: 40ff.) briefly addresses antipassive-anticausative syncretism, e.g. in the Slavic language Russian (§5.4), and the said syncretism is observed in the Northern Chukotko-Kamchatkan language Chukchi and the language isolate Oksapmin addressed in the preceding sections by Janic (2010: 167) and Vigus (2016: 76), respectively. Note that Janic (2010: 165f.) also mentions the antipassive-reflexive syncretism of the suffix *-gali* in the Northern Pama-Nyungan language, but does not mention its anticausative function (cf. Tsunoda 2011: 523). Antipassive-anticausative syncretism has also been observed in the Bantu language Citumbuka (Chavula 2016) and in the Northwest Caucasian language Adyghe (Letuchiy 2007).

Although antipassive-anticausative syncretism has received less attention in the literature than both antipassive-reflexive and antipassive-reciprocal syncretism, it is just as common as antipassive-reflexive syncretism among the languages in the language sample of the present study. In addition to Chukchi and Oksapmin, the syncretism in question has been attested in eight other languages in the sample, six of which have been mentioned in one or both of the preceding sections as well: the Turkic language Tatar, the Permic language Udmurt (both EA), the Gunwinyguan language Nunggubuyu (AU), the Oto-Manguean language Acazulco Otomí, the Southern Iroquoian language Cherokee (both NA), and the Tacanan language Ese Ejja (SA). The two remaining languages in which antipassive-anticausative syncretism has been attested are the language isolate Mosetén (SA) and the Eastern Sudanic language Majang (AF). The syncretism in Majang is described further below, while the remaining languages are addressed in the next chapter due to their complex voice syncretism.

It is here worth remarking that the Solomons East Papuan language Savosavo (PN) in the language sample has a "detransitivizing" suffix *-za*, one function of which is anticausative; e.g. *pili* 'to turn sth. around' ↔ *pili-za* 'to turn around' (id.: Wegener

2012: 275, 376). Wegener also describes another function of the suffix which is reminiscent of an antipassive: "[t]he subject is unchanged, only the object is removed" (id.: 171); e.g. *ghogho* 'to swear at sb.' ↔ *ghogho-za* 'to swear' (ibid.). However, according to Wegener this particular function of *-za* is rare and has hitherto not been attested with any other verb but *ghogho* (personal correspondence on December 4th, 2019). Consequently, antipassive-anticausative syncretism is therefore not recognised for Savosavo in the present study.

In Majang four suffixes can serve as voice marking in both the antipassive and anticausative voices: conjoint *-ì꞉* and disjoint *-i꞉ˈᴸ* (with "most a-class verbs"), and conjoint *-dî꞉* and disjoint *-dî꞉ˈᴸ* (with verbs of other language-specific classes; Joswig 2019: 227). The conjoint-disjoint distinction is maintained throughout the verbal system of Majang and is not unique to antipassives and anticausatives; according to Joswig the distinction is "conditioned by the case and the topicality status of the following NP" (id.: 132). The antipassives use of both conjoint *-dî꞉* (glossed CJ) and disjoint *-dî꞉ˈᴸ* (glossed DJ) are illustrated below (182↔183, 182↔184), and so is the anticausative use of the latter suffix (185↔186). Observe that verbs marked by one of the suffixes under discussion "often change their stem tone" (id.: 229; cf. exx. 182↔183) though not always (cf. exx. 185↔186). However, the effects are the same in both the antipassive and anticausative voices (cf., e.g., the antipassive voice relation *ɓòkòt* 'to kill sb.' ↔ *ɓòkò-dî꞉* 'to kill [sb.];' ibid.).

Majang (Joswig 2019)

182. *kàw-é* *wâr* *èːɟé*
bite-3SG.DJ dog.SG.ERG cat.SG.ABS
'A dog bites a cat.' (id.: 228)

183. *káw-**dîːˈ***ᴸ *wár* *kɛ́kàr*
bite-ANTP.DJ dog.SG.NOM again
'The dog bites again.' (ibid.)

184. *káw-**dîː*** *wárᴸ* *kɛ́kàr*
bite-ANTP.CJ dog.SG.ABS again
'A dog bites again.' (ibid.)

185. *ŋù:l-è* *béá*^{L}
break-3SG.CJ spear.SG.ABS
'He broke a spear.' (id.: 361)

186. *ŋù:l-**dî:*** *béá*^{L} *nɛ̀:k-ɛ̂:=ŋ*
break-ANTC.DJ spear.SG.NOM POSS.3SG-NOM=TOP
'And his spear broke.' (ibid.)

In terms of the diachrony, there does not appear to be any evidence for antipassive voice marking developing an anticausative function or for anticausative voice marking developing an antipassive function. By contrast, it is demonstrated later in §7.1.2 and §7.1.4 that antipassive-anticausative syncretism can ultimately have a reflexive origin, for instance in Nunggubuyu.

4.2.4 Passive-antipassive

Passive-antipassive syncretism is discussed rather seldom in the literature, though it is worth noting that the syncretism has a long tradition of study in the Slavic language Russian (e.g. Nedjalkov & Sil'nickij 1969). A rare explicit description of passive-antipassive syncretism in another language but Russian is provided by Zúñiga & Kittilä (2019: 241) who observes the said syncretism in the Arauan language Paumarí (SA); e.g. *soko-* 'to wash sth.' ↔ *soko-a-* 'to wash [sth.]' or 'to be washed [by sb.]' (Chapman & Derbyshire 1991: 298). Zúñiga & Kittilä (2019: 241) further argue that similar syncretism is "rather difficult to find." Interestingly, Creissels (2012) argues – quite on the contrary – that passive-antipassive (and other patterns of middle and antipassive syncretism) are "extremely common cross-linguistically," noting that such syncretism is "found in particular in languages belonging to various branches of the Indo-European family (Romance, Slavic, Germanic, etc.), as the result of the evolution of the Proto-Indo-European reflexive pronoun **se*" (id.: 10; §7.1). However, the antipassives in the languages mentioned by Creissels rarely feature verbal voice marking (with a few exceptions; notably Russian mentioned above) and are therefore beyond the scope of the present study. However, Creissels (2012: 10; 2016: 54) does provide interesting examples of passive-antipassive syncretism in the Western Mande language Soninke also briefly addressed in §4.2.1, but does not otherwise mention any

other languages featuring passive-antipassive syncretism; cf. Soninke *ñígá* 'to eat sth.' ↔ *ñíg-é* 'to eat [sth.]' or 'to be eaten [by sb.]' (ibid.).

Moreover, Dixon (1994: 151f.) and Dixon & Aikhenvald (2000: 11; 2011: 51) argue for antipassive-passive in certain Australian languages, for instance in the Northern Pama-Nyungan language Kuku-Yalanji characterised by the suffix *-ji* and in the Central Pama-Nyungan language Diyari characterised by the suffix *-tharri* (alternatively *-ṯadi* or *-thadi*). However, it is not entirely clear from the limited available data on these languages (e.g. Patz 2002 on Kuku-Yalanji, Austin 2013 on Diyari) whether or not the suffixes can have an antipassive function according to the definitions employed in the present study (§2.2.2). On the one hand, both Patz and Austin explicitly explain that the agent can be left unexpressed in the passive voice in the languages, and the passive function of the suffixes *-ji* and *-tharri* is thus readily accepted (Patz 2002: 148; Austin 2013: 162). On the other hand, it is not clear if the same holds true for the semantic participant which is not an agent in the antipassive voice; in the examples provided by Patz and Austin all semantic participants seem equally likely to be expressed syntactically but are marked differently in terms of language-specific case marking (Patz 2002: 151; Austin 2013: 160). Differences of this kind alone do not qualify as antipassive in the present study. Likewise, Janic (2016) argues for passive-antipassive syncretism in the Oceanic languages Mokilese and Kara (both PN) characterised by the suffixes *-ek* and *-ai*, respectively, but as in the case of Kuku-Yalanji and Diyari above, data on these languages is too scarce to determine if the said suffixes have an antipassive function according to the definitions employed in the present study (Harrison 1976 on Mokilese, Schlie 1983 on Kara).

Passive-antipassive syncretism is attested in four languages in the language sample of the present study, three of which have already been mentioned in one or more of the preceding sections: the Permic language Udmurt, the Turkic language Tatar (both EA), and the language isolate Mosetén (SA). The fourth language is the Algonquian language Arapaho. Passive-antipassive syncretism has already been described for Arapaho in §3.2.1, while it is discussed for the other three languages in the next chapter. Nevertheless, due to the rare nature of the syncretism and the little attention it has received in the literature, it is discussed in turn for each of the aforementioned languages further below. Moreover, note that the verbal marking in the antipassive-

like voice described for the Salishan languages Nxa'amxcin and Musqueam in §2.2.2 bears resemblance to the voice marking in the passive voice in these languages. However, as this syncretism does not qualify as proper passive-antipassive syncretism according to the definitions of this study, the said syncretism is ignored in this section (but see §5.2.1 for a few examples from Musqueam).

In Mosetén passive-antipassive syncretism is characterised by the suffix *-ki* as seen in the passive voice relation (187↔188) and the antipassive voice relation (189↔190) below; the suffix in question is discussed in more detail later in §5.2.1. Note that the thematic "verbal stem marker" *-(ty)i* in a stem becomes *-(ty)e* when followed by "transitive cross-reference forms which do not trigger vowel harmony" (id.: 45), including the third person female object marker *-'* in example (189). The same stem marker changes to *-(ty)a* before certain suffixes, including *-ki* (id.: 47, 308). Likewise, the underlying stem of the verbs in the passive voice relation (187↔188) is *jeb-i*; the third person plural inclusive object marker *-ksi* is another suffix prompting the preceding verbal stem marker *-i* to change into *-a* (ibid.).

Mosetén (Sakel 2004)

187. *me'-tya-ksi-'* *katyi'* *mö'-yä'* *jike* *iji* *jeb-a-ksi-'*
so-TH-3PL.OBJ-F EVID 3F-ADE PST ucumari eat-TH-3PL.OBJ-F
'So it did this to them, the ucumari-monster, it ate them.' (id.: 231)

188. *khin'-cchata'* *aj* *jeb-a-**ki**-'* *phen-yäe*
now-MOD yet eat-TH-PASS-F woman-1SG.POSS
'Now truly my wife has been eaten.' (id.: 306)

189. *tsin* *khin'* *i-ya'* *jäe'mä* *karij-tye-'* *öi* *texto* *en* *Mosetén*
1PL now M-ADE uh hard-TH-3F.OBJ DEM.F text in Mosetén
'Here, we now work on this text in Mosetén.' (id.: 311)

190. *mi'-ya'* *karij-tya-**ki*** *jiri-s* *yomodye'*
3M-ADE hard-TH-ANTP one-F year
'There I worked for one year.' (ibid.)

Sakel (2004: 308) explicitly discusses passive-antipassive syncretism in Mosetén: "Many verbs can be marked by both the antipassive and the middle. When the forms are similar, only context and common knowledge clarifies the intended meaning of

the speaker. Hence, a vermin bites more than getting bitten itself […], whereas a woman most probably gets bitten more than biting someone herself" (id.: 308); compare examples (191) and (192) below. Note that Sakel makes a distinction between the antipassive voice on the one hand, and a "middle (voice)" covering the passive and anticausative voices on the other hand (id.: 306ff.), but explicitly maintains that the voices share the exact same marking, i.e. *-ki* (id.: 308f.).

Mosetén (Sakel 2004: 306, 308)

191. *mö'* *raem'-ya-**ki**-'* *ïnöj* *yomo'*
3F.SG bite-TH-PASS-F.SG moment night
'She was bitten [by sb.] last night.'

192. *mö'* *roro'* *raem'-ya-**ki**-'*
3F.SG vermin bite-TH-ANTP-F.SG
'This vermin has bitten [sb.].'

Passive-antipassive syncretism is characterised by the suffix *-ee* in Arapaho (193-196), by the suffix *-n* in Tatar (197-200), and by the suffix *-śk* in Udmurt (201-204). Other examples of passive-antipassive syncretism are provided for Arapaho on page 88 (vid. exx. 69-71), for Tatar on page 161 (vid. exx. 396-399), and for Udmurt on page 174 (vid. exx. 508-511).

Arapaho (Cowell & Moss Sr. 2008: 133, 229; 155f., 276, 280, 307; 135; 136)

193. PASS *neh'-* 'to kill sb.' ↔ *neh'-**ee**-* 'to be killed [by sb.]'
194. PASS *nestoow-* 'to warn sb.' ↔ *nestoow-**ee**-* 'to be warned [by sb.]'
195. ANTP *otoon-oo-* 'to buy sth.' ↔ *otoon-**ee**-* 'to buy [sth.]'
196. ANTP *ceit-oo-* 'to visit sb.' ↔ *ceit-**ee**-* 'to visit [sb.]'

Tatar (Burbiel 2018: 473; ibid.; 485; Ganiev 1997: 198, 201)

197. PASS *taşla-* 'to throw sth.' ↔ *taşla-**n**-* 'to be thrown [by sb.]'
198. PASS *ülçä-* 'to measure sth.' ↔ *ülçä-**n**-* 'to be measured [by sb.]'
199. ANTP *tikşer-* 'to investigate sth.' ↔ *tikşer-**en**-* 'to investigate [sth.]'
200. ANTP *ezlä-* 'to search for sth.' ↔ *ezlä-**n**-* 'to search for [sth.]'

Udmurt (Perevoščikov 1962: 227f.; Kirillova 2008)

201.	PASS	*leśt-*	'to build sth.'	↔	*lest-**ïśk-***	'to be built [by sb.]'
202.	PASS	*birj-*	'to elect sb.'	↔	*birj-**iśk-***	'to be elected [by sb.]'
203.	ANTP	*pyž-*	'to bake sth.'	↔	*pyž-**iśk-***	'to bake [sth.]'
204.	ANTP	*gožja-*	'to write sth.'	↔	*gožja-**śk-***	'to write [sth.]'

Vuillermet's (2012) discussion of the circumfix *xa-…-ki* in the Tacanan language Ese Ejja (SA) also included in the sample superficially suggests the existence of passive-antipassive syncretism in the said language: she specifically states that the said circumfix can have a "reflexive, reciprocal, antipassive, anticausative, and passive-like" function (id.: 519). On the one hand, in its antipassive function a semantic participant which is not an agent is "typically omitted but may be encoded by an oblique" (id.: 520), complying with the definitions of antipassives employed in this study (vid., e.g., exx. 170-171 p. 113). On the other hand, no semantic participant seems to be more or less likely to be omitted in her purported passive examples (ibid.). On the contrary, Vuillermet suggests that perhaps a passive reading is simply not possible if a semantic participant is omitted, and also remarks that the purported passive function of the circumfix is fairly rare in the first place (personal correspondence on November 13th, 2019). For these reasons, passive-antipassive syncretism is not recognised for Ese Ejja in this study.

As discussed later in §7.1, it is well-known that passive-antipassive syncretism in Indo-European languages like Russian mentioned in the beginning of the present section has a reflexive origin; this is partly true for Tatar as well (§5.2.1). By contrast, relatively little is known about the origin of passive-antipassive syncretism in other languages, and it has not been possibly to establish the exact diachrony for the said syncretism in Mosetén and Arapaho nor in Udmurt (§5.4). As argued by Janic (2016: 180), it is very likely that passive-antipassive syncretism can arise from a generalised function that syntactically suppresses any semantic participant (whether agent or not); a similar view is shared by Malchukov (2017: 24). The suffix *-ki* in Mosetén described further above is a particularly good example of such a function.

4.3 Causative syncretism

As mentioned in the beginning of this chapter, causative syncretism refers to simplex voice syncretism involving the causative voice and one of the other voices of interest in this study. Thus, the following patterns of simplex syncretism are discussed in the following sections: causative-applicative (§4.3.1), causative-passive (§4.3.2), causative-antipassive (§4.3.3), causative-reflexive (§4.3.4), causative-reciprocal (§4.3.5), and causative-anticausative (§4.3.6). Causative-applicative and causative-passive syncretism is well-known in the literature and widely attested cross-linguistically, while the remaining patterns of causative syncretism have received little attention in the past. Nevertheless, as will become evident in the following sections, each of the patterns is attested in the language sample of the present study.

4.3.1 Causative-applicative

Alongside middle syncretism, causative-applicative syncretism is among the most discussed patterns of voice syncretism in the literature. Early observations on cross-linguistic similarities between voice marking in the causative and applicative voices are provided by Nedjalkov & Sil'nickij (1969: 36f.), for example in relation to the affix *r-/n-(…-et/-at*) in the Northern Chukotko-Kamchatkan language Chukchi, the suffix *-se* in Yukaghir (both EA), the suffix *-isa* in the Bantu language Zulu (AF), and the suffix *-kan* in the Malayo-Sumbawan language Indonesian (PN). Chukchi and Yukaghir (more specifically Tundra Yukaghir) both form part of the language sample in the present study, while the Bantu and Malayo-Sumbawan genera are represented in the sample by Namibian Fwe and Madurese, respectively. Causative-applicative syncretism is acknowledged for each of these languages here. Furthermore, Nedjalkov & Sil'nickij also argue for causative-applicative syncretism in the Penutian language Miwok and the Oregon Coast language Siuslaw (both NA), but it has not been possible to confirm this claim due to lack of data.

Shibatani & Pardeshi (2002: 116ff.) observe causative-applicative syncretism in various additional languages, for instance in the Northern Pama-Nyungan language Yidiny (AU) and the Yuman language Hualapai (NA) as well as in the Panoan language Matsés (SA). The Northern Pama-Nyungan genus is not included in the language sample of this study, but the related Western Pama-Nyungan genus is represented by

the language Mparntwe Arrernte which also features causative-applicative syncretism as illustrated further below. For an overview of causative-applicative syncretism among Australian languages in general, see Austin (2005). The Yuman and Panoan genera are also part of the sample, represented by the languages Jamul Tiipay and Chácobo, respectively. Causative-applicative syncretism has been attested in the latter language (Tallman 2018), but not in the former (A. Miller 2001). Additional typological discussions of causative-applicative syncretism is provided by, e.g., Comrie (1989: 183), Kulikov (2001: 984; 2010: 394), Haspelmath & Müller-Bardey (2004: 1139), Malchukov (2015: 115f.; 2016: 403ff.; 2017: 6ff., 9ff.), and recently Zúñiga & Kittilä (2019: 234ff.) and Franco (2019), inter alia.

In the language sample of the present study causative-applicative syncretism is attested in altogether 22 languages: as type 2 syncretism in the language isolate Kwaza and the Central Cushitic language Khimt'anga (both AF); as type 3 syncretism in the Sepik language Alamblak (PN) and the language isolate Ainu (EA); and as type 1 syncretism in the remaining eighteen languages (including Chukchi, Tundra Yukaghir, Namibian Fwe, Madurese, Mparntwe Arrernte, and Chácobo mentioned above). Causative-applicative syncretism has already been illustrated for Kwaza in §3.2.3 (vid. exx. 108-111 p. 94) and for Ainu and Alamblak in §3.2.4 (vid. exx. 128-135 p. 97), while the said syncretism is exemplified for Khimt'anga in this section. Causative-applicative syncretism forms part of more complex voice syncretism in Chácobo as well as in the language isolate Kutenai (NA), for which reason these languages are addressed separately in §5.3.3. For practical reasons, it is not possible to exemplify causative-applicative syncretism in each of the remaining seventeen languages, but for illustrative purposes the said syncretism is described for five geographically diverse languages below: the North Halmaheran language Ternate (PN), the language isolate Chabu (AF) and the Uto-Aztecan language Pima Bajo (NA) in addition to Mparntwe Arrernte (AU) and Tundra Yukaghir (EA) already mentioned further above.

Causative-applicative syncretism in Ternate is illustrated below by a causative voice relation (205↔206) and an applicative voice relation (207↔208). As seen in these examples, the prefix *si-* serves as voice marking in both the causative voice (206) and the applicative voice (208). The causative-applicative syncretism in the language is explicitly noted by Hayami-Allen (2001), who remarks that the non-causative use

of the prefix adds “an implication that the action is done purposefully, for someone else’s benefit, by someone else’s order, or by an instrument” (id.: 132). In this case, the action is done for someone else’s benefit (208), and the verb does not have the meaning *‘to make sb. open sth.’ here.

Ternate (Hayami-Allen 2001)

205. *ma-ngofa* *gee* *hotu*
POSS-child DEM sleep
‘The child is sleeping.’ (id.: 130)

206. *ma-yaya* ***si****-hotu* *ma-ngofa* *gee*
POSS-mother CAUS-sleep POSS-child DEM
‘The mother put the child to sleep.’ (id.: 131)

207. *mina* *hoi* *ngara*
3SG.F open door
‘She opened the door.’ (id.: 132)

208. *kanang* *mina* ***si****-hoi* *ngara,* *ngori* *to=wosa*
a.while.ago 3SG.F APPL-open door 1SG 1SG=enter
‘A while ago she opened the door [for me], and I entered.’ (ibid.)

Causative-applicative syncretism is characterised by the suffix *-(u)mba* in Chabu (209-212), by the suffix *-id/-di* in Pima Bajo (213-216), and by the suffix *-lhile* in Mparntwe Arrernte (217-220). Note that the applicative use of the suffix *-lhile* in the latter language only is attested with the two verbs presented here (i.e. exx. 219-220).

Chabu (Kibebe 2015: 276, 279)

209.	CAUS	*ate-*	‘to open’	↔	*ate-**mba**-*	‘to open sth.’
210.	CAUS	*gɛt-*	‘to move/turn’	↔	*gɛt-**umba**-*	‘to move/turn sth.’
211.	APPL	*t’ak’o-*	‘to pestle sth.’	↔	*t’ak’o-**mba**-*	‘to pestle sth. for sb.’
212.	APPL	*aɗit-*	‘to winnow sth.’	↔	*aɗit-**umba**-*	‘to winnow sth. for sb.’

Pima Bajo (Fernández 2014: 84; 169; 122, 166; 174, 214)

213.	CAUS	*hoin*	‘to rock’	↔	*hoin-**id***	‘to rock sth.’
214.	CAUS	*tood*	‘to be frightened’	↔	*tood-**id***	‘to frighten sb.’
215.	APPL	*hink*	‘to shout’	↔	*hink-**id***	‘to shout at sb.’
216.	APPL	*som*	‘to sew sth.’	↔	*som-**di***	‘to sew sth. for sb.’

Mparntwe Arrernte (Wilkins 1989: 258)

217.	CAUS	*tnye-*	'to fall'	↔	*tnye-**lhile-***	'to make sth. fall'
218.	CAUS	*pwernke-*	'to split open'	↔	*pwernke-**lhile-***	'to split sth. open'
219.	APPL	*therre-*	'to laugh'	↔	*therre-**lhile-***	'to laugh at sb.'
220.	APPL	*artne-*	'to cry'	↔	*artne-**lhile-***	'to cry for sb.'

In Tundra Yukaghir the suffix *-re* can serve as voice marking in both the causative (221-222) and applicative voices (223-224). Similar syncretism can be observed for the suffix *-re* in the closely related Kolyma Yukaghir language (Maslova 2003: 224). It is worth noting that "[t]he suffix is confined to the semelfactive [aspect]" in Tundra Yukaghir (Schmalz 2013: 160) for which reason it is generally followed by the semelfactive suffix *-j* (e.g. *mojaγa-re-j-* 'to make sth. soft,' *porčaγa-re-j-* 'to sprinkle sth.'). However, the semelfactive suffix is not exclusive to the causative and applicative voices (cf., e.g., *tiwaγa-* 'to wink' ↔ *tiwaγa-j-* 'to wink once') and it is therefore not included in examples (221-224) below; note that the semelfactive suffix appears to have become lexicalised in the verb *köčegej-* 'to gallop' (id. 28, 153).

Tundra Yukaghir (Schmalz 2013: 154; 160; ibid., 28, 153; 111)[13]

221.	CAUS	*mojaγa-*	'to get soft'	↔	*mojaγa-**re-***	'to make sth. soft'
222.	CAUS	*sal'γa-*	'to break'	↔	*sal'γa-**re-***	'to break sth.'
223.	APPL	*köčegej-*	'to gallop'	↔	*köčegej-**re-***	'to rush/jump at sb.'
224.	APPL	*porčaγa-*	'to splash'	↔	*porčaγa-**re-***	'to sprinkle sth.' (i.e. 'to splash at sth.')

Finally, in Khimt'anga the suffix *-s* serves as voice marking in both the causative (225-226) and applicative voices, in the latter in combination with full reduplication (227-228); the schwa in the reduplicated forms is a "linking vowel" (Belay 2015: xxi). Note that the applicative voices in examples (227) and (228) are translated '[Guleshe] supported [them] break [the wood]' and '[Aderu] supported [Guleshe] buy [the cow]'

[13] The voice relations *sal'γa-* ↔ *sal'γa-re-* and *köčegej-* ↔ *köčegej-re-* appear as *sal'γač* ↔ *sal'γarejm* and *köčegeč* ↔ *köčegejrem* in the original source (Schmalz 2013: 160). The final *-č* results from the affrication (id.: 54) of the semelfactive suffix *-j* and the third person intransitive marker *-j* (*sal'γač* < **sal'γa-j-j*, *köčegeč* < **köčege-j-j*), while the final *-m* is simply a language-specific third person transitive marker.

in the original source, respectively (id.: 231f.). However, it is they (i.e. 'them') who break the wood in the former voice, and Guleshe only supports them in doing so. Likewise, Guleshe buys the cow in the latter voice, and Aderu only supports him in doing so. Thus, there is no causer present in neither voice, and the voice relations qualify as applicative (§2.2.2). The applicative use of the suffix *-s* is tellingly called "adjutative" by Belay (ibid.).

Khimt'anga (Belay 2015: 229, 235; 127, 161; 231, 235; 232, 237)

225.	CAUS	*χʷ-*	'to eat sth.'	↔	*χʷ-**is**-*	'to make sb. eat sth.'
226.	CAUS	*qal-*	'to see sth.'	↔	*qal-**s**-*	'to make sb. see sth.'
227.	APPL	*kil-*	'to break sth.'	↔	***kil-ə**-kil-**s**-*	'to break sth. with support from sb.'
228.	APPL	*dʒɨβ-*	'to buy sth.'	↔	***dʒɨβ-ə**-dʒɨβ-**is**-*	'to buy sth. with support from sb.'

As discussed at length later in §7.5.3 and §7.6.3, diachronic evidence suggests that causative-applicative syncretism can have either a causative or an applicative origin which highlights the close relationship between the two voices. Indeed, as shown in §6.3.1, causative-applicative syncretism is cross-linguistically more prevalent than many of the patterns of middle syncretism discussed in the beginning of this chapter.

4.3.2 Causative-passive

Causative-passive syncretism is like middle syncretism and causative-applicative syncretism among the most discussed patterns of voice syncretism in the literature, and observations on the phenomenon date back more than one and a half century. As noted by Nedyalkov (1991: 4f.), "[i]t was H. C. von der Gabelentz who in 1861 drew attention to the existence of such causative forms which may fulfil passive function" (vid. von der Gabelentz 1861: 516-529). Renewed interest in the syncretism in question is in turn generally credited to the aforementioned Nedyalkov's father Nedjalkov's (1964) study "on the link between causativity and passivity" (*О связи каузативности и пассивности*), as well as Nedjalkov & Sil'nickij (1969: 38ff.). As observed in these and later studies, causative-passive syncretism appears to be particularly widespread among Altaic or Trans-Eurasian languages, including Korean as well as Mongolic, Tungusic, Turkic languages (e.g. Robbeets 2007).

Korean is included in the language sample of the present study and so are representatives of the three aforementioned genera; the Mongolic language Mongolian, the Tungusic language Kilen, and the Turkic language Tatar. Causative-passive syncretism is attested in the first three languages as illustrated further below, but not in Tatar (Zinnatullina 1993, Burbiel 2018). Causative-passive syncretism can be found in other Turkic languages though; cf. Old Turkic *bak-* 'to look at sth.' ↔ *bak-ït-* 'to make sb. look at sth., *kov-* 'to follow/chase sb.' ↔ *kov-ït-* 'to be chased [by sb.]' (Robbeets 2015: 291f.). In fact, Robbeets reconstructs a causative-passive suffix for Proto-Turkic, **-ti* (2007: 178ff.; 2015: 290ff.). The reconstructed suffix is reflected by the suffix *-t* in Tatar which has a causative function but does not seem to have a passive function. Robbeets also argues for causative-passive syncretism in Proto-Japonic characterised by the suffix **-ta* and reflected by Old Japanese *-t* (2007: 165f.; 2015: 276f.), but provides no convincing examples of its purported passive use, and causative-passive syncretism is therefore not recognised for this language. The Japonic genus is represented in the language sample by the language Irabu (EA) which does not feature causative-passive syncretism (Shimoji 2008).

Kulikov (2001: 894; 2010: 394) remarks that causative-passive syncretism has additionally been attested in "some West African languages (Songhai, Dogon), Bella Coola (Amerindian), and some other languages of the world," but provides no examples. In the language sample of the present study the Songhay and Dogon genera are represented by the languages Humburi Senni and Yanda Dom which do indeed feature causative-passive syncretism as shown further below. Neither the language Bella Coola nor the genus of the same name is included in the sample, but two related languages are; the Central Salish language Musqueam and the Interior Salish language Nxa'amxcin (both NA), but these languages do not feature causative-passive syncretism (Suttles 2004, Willett 2003). Finally, causative-passive syncretism has been addressed to various extents by Shibatani (1985: 840), Haspelmath (1990: 46ff.), Knott (1995), Dixon (2000: 31), Malchukov (2016: 400ff.), inter alia.

In addition to Mongolian, Kilen, Korean, Humburi Senni, and Yanda Dom, causative-passive syncretism is attested in nine other languages: as type 1 syncretism in the Mixe-Zoque language Ayutla Mixe, the language isolate Kutenai, and San Francisco del Mar Huave (all three NA) in addition to the North Omotic language

Wolaytta (AF); and as type 2 syncretism in the Arawakan language Yine, the Panoan language Chácobo (both SA), the Finnic language Finnish (EA), the Lowland East Cushitic language Konso, as well as the Kxa language ǂHòã (both AF). Note that the causative-passive syncretism in Mongolian, Kilen, Korean, Humburi Senni, and Yanda Dom also is of type 1. The syncretism in question has already been described for Wolaytta and San Francisco del Mar Huave in §3.2.2 (vid. exx. 88-93, 99-102 p. 90), while Kutenai, Yine, and Chácobo are addressed in the next chapter due their complex voice syncretism. Causative-passive syncretism in the remaining nine languages is discussed an illustrated in this section. Consider, for instance, the fully glossed example of causative-passive syncretism from Ayutla Mixe in the form of a causative voice relation (229↔230) and a passive voice relation (231↔232). As seen in these examples, the prefix *ak-* serves as voice marking in both the causative (230) and passive voices (232). Romero-Méndez (2009: 370) notes that "[t]he same phenomenon is observed in other Mixe languages," including Olutec (Zavala 2000).

Ayutla Mixe (Romero-Méndez 2009)

229. […] *ta* *atäm* *n-jëntsën* *y-ook-yë'n*
DEM.MED 1PL.INCL 1POSS-chief 3SBJ-die-1.INCL
'[…] then our leader died.' (id.: 482)

230. *pës* *n-**ak**-ook-ë'm* *yë'ë* *tsä'äny*
DISC 1A-CAUS-die-1PL.EXCL DEM.M snake
'We have to kill the snake.' (ibid.)

231. *ja'a* *pää'äy* *ojts* *w<y>ä'äke'ek-y*
DEM.D savage PST take<3.OBJ.INV>-ASP
'The savage people took her there.' (id.: 495)

232. *ps* *jam* *ojts* *y-**ak**-wä'äke'ek-y*
DISC DEM.DIST PST 3SG-PASS-take-ASP
'She was taken there.' (ibid.)

Causative-passive syncretism in the four Trans-Eurasian languages discussed in the beginning of this section is exemplified below. The said syncretism is characterised by the suffix *-uul* in Mongolian (233-235), by the suffix *-wu* in Kilen (236-238), and by the suffix *-(C)i* in Korean (239-242). In Finnish the syncretism is characterised by the suffix *-ta/-tä* which is always accompanied by the suffix *-an/-än*

in the passive voice (245-246) but not in the causative voice (243-244); the allomorphs depend on vowel harmony. The suffixes are investigated later in terms of diachrony in §7.5.2.

Mongolian (Tserenpil & Kullmann 2008: 123; Janhunen 2010: 249f.)

233.	CAUS	*asg-*	'to empty sth.'	↔	*asg-**uul***	'to make/let sb. empty sth.'
234.	PASS	*xaz-*	'to bite sth.'	↔	*xaz-**uul***	'to be bitten [by sb.]'
235.	CAUS/ PASS	*id-*	'to eat sth.'	↔	*id-**uul***	a. 'to make/let sb. eat sth.' b. 'to be eaten [by sb.]'

Kilen (Paiyu 2013: 59, 173; 116f.; ibid., 188f.)

236.	CAUS	*ənə*	'to go'	↔	*ənə-**wu***	'to make sb. go'
237.	PASS	*dzəfə*	'to eat'	↔	*dzəfə-**wu***	'to be eaten [by sb.]'
238.	CAUS/ PASS	*tanta*	'to hit sth.'	↔	*tanta-**wu***	a. 'to make sb. hit sb.' b. 'to be hit [by sb.]'

Korean (H.-M. Sohn 1999: 369, 375)

239.	CAUS	*wus*	'to laugh'	↔	*wus-**ki***	'to make sb. laugh'
240.	CAUS	*kwul*	'to roll'	↔	*kwul-**li***	'to roll sth.'
241.	PASS	*ccoch*	'to chase sb.'	↔	*ccoch-**ki***	'to be chased [by sb.]'
242.	PASS	*kkul*	'to pull sth.'	↔	*kkul-**li***	'to be pulled [by sb.]'

Finnish (personal knowledge)

243.	CAUS	*alene-*	'to descend'	↔	*alen-**ta-***	'to lower sth.'
244.	CAUS	*heikene-*	'to weaken'	↔	*heiken-**tä-***	'to weaken sth.'
245.	PASS	*lue-*	'to read sth.'	↔	*lue-**ta-an***	'to be read [by sb.]'
246.	PASS	*iske-*	'to hit sth.'	↔	*iske-**tä-än***	'to be hit [by sb.]'

Next, causative-passive syncretism in the three African languages Yanda Dom, Humburi Senni, and Konso is illustrated below. The syncretism in both Yanda Dom and Humburi Senni is rather marginal. In Yanda Dom the suffix *-mέ* serves as voice marking in both the causative (247-248) and passive voices, though only three verbs of perception are attested in the latter voice (249-251). Heath (2017: 237) notes that the passive sense of the suffix "can be semelfactive, e.g. 'was seen (once)', as well as habitual," and also remarks that the suffix can have a sense of potentiality depending

on context (e.g. ‘to be findable’). Humburi Senni is rather similar to Yanda Dom in this respect. In this language the suffix *-(y)éyndí* serves as voice marking in both the causative (252-253) and passive voices (254-255). Heath (2014: 282) calls the latter voice “potential passive” and observes that “[t]he most common sense of the potential passive is ‘be VERB-able’ or ‘be habitually VERB-ed.’” However, he additionally remarks that “a more general passive function is also possible” (ibid.). In turn, in Konso the suffix *-adˀ* serves as voice marking in the passive voice (258-259), and also forms part of suffix *-acciis* (i.e. *-adˀ* plus *-ciis/-siis*; Orkaydo 2013: 139) serving as voice marking in the causative voice (256-257).

Yanda Dom (Heath 2017: 227, 237)

247.	CAUS	*jé*	‘to dance’	↔	*jé-**mɛ́***	‘to make sb. dance’
248.	CAUS	*yɛ́*	‘to weep’	↔	*yɛ́-**mɛ́***	‘to make sb. weep’
249.	PASS	*tɛ́mbɛ́*	‘to find sth.’	↔	*tɛ́mbɛ́-**mɛ́***	‘to be found [by sb.]’
250.	PASS	*wɔ́*	‘to see sth.’	↔	*wɔ́-**mɛ́***	‘to be seen [by sb.]’
251.	CAUS/ PASS	*nɔ́*	‘to hear sth.’	↔	*nɔ́-**mɛ́***	a. ‘to make sb. hear sth.’ b. ‘to be heard [by sb.]’

Humburi Senni (Heath 2014: 280, 283)

252.	CAUS	*tóː*	‘to become full’	↔	*tóː-**yéyndí***	‘to fill sth.’
253.	CAUS	*zéː*	‘to swear’	↔	*zéː-**yéyndí***	‘to make sb. swear’
254.	PASS	*nóː*	‘to give sb. sth.’	↔	*nóː-**yéyndí***	‘to be given [by sb. to sb.]’
255.	PASS	*díː*	‘to see sth.’	↔	*díy-**éyndí***	‘to be seen [by sb.]’

Konso (Orkaydo 2013: 222, 143; ibid., 147; 145; ibid.)

256.	CAUS	*ɠot-*	‘to dig sth.’	↔	*ɠot-**acciis***	‘to make sb. dig sth.’
257.	CAUS	*mur-*	‘to cut sth.’	↔	*mur-**acciis***	‘to make sb. cut sth.’
258.	PASS	*kup-*	‘to burn sth.’	↔	*kup-**adˀ-***	‘to be burned [by sb.]’
259.	PASS	*χor-*	‘to fine sb.’	↔	*χor-**adˀ-***	‘to be fined [by sb.]’

It is well-known that causative-passive syncretism generally tends to have a causative origin cross-linguistically, and such diachrony is described in §7.5.2. By contrast, it has hitherto not been possible to find any evidence for passive voice marking developing a causative function.

4.3.3 Causative-antipassive

Discussions of causative-antipassive syncretism are considerably more scarce in the typological literature than those of causative-applicative and causative-passive syncretism, and mostly consist of sporadic observations on a few languages. For instance, causative-antipassive syncretism has been observed in the Atlantic language Wolof (AF) by Creissels & Nouguier-Voisin (2008); cf. *génn* 'to go out' ↔ *génn-e* 'to take sth. out' (i.e. 'to make sth. go out'), *màtt* 'to bite sth.' ↔ *màtt-e* 'to bite [sth.]' (id.: 295, 297). The phenomenon has likewise been attested in the Western Mande language Bakel Soninke (AF) by Creissels & Diagne (2013); cf. *bònò* 'to become spoilt' ↔ *bònò-ndì* 'to damage sth.' (i.e. 'to make sth. become spoilt') ↔ *bònò-ndì-ndì* 'to damage [sth.]' (id.: 20). Outside of Africa the syncretism in question has been noted in the South American South Guaicuruan language Mocoví by Juárez & González (2017); cf. *[ɾ-]eda* 'to move' ↔ *[y-]ida-ɢan* 'to move sth.' (id.: 244f.), *-ta-* 'to sniff sth.' ↔ *-ta-ɢan* 'to sniff [sth.]' (id.: 240). Note that third person agreement markers *ɾ-* and *y-* are included here in square brackets only to show how they affect the following vowel phonologically; neither the vowel variation nor the markers themselves are part of the voice marking per se.

Each of three abovementioned genera are also included in the language sample of the present study; by the languages Jalkunan, Ganja Balanta, and Pilagá, respectively, but causative-antipassive syncretism is only attested in Ganja Balanta. In fact, in addition to Ganja Balanta, causative-antipassive syncretism is attested in only one other language in the sample, the Timor-Alor-Pantar language Makalero (PN). Causative-antipassive syncretism in both languages has already been exemplified briefly, for Makalero in §3.2.1 (cf. exx. 64-67 p. 87) and for Ganja Balanta in §3.2.2 (cf. exx. 103-106 p. 92). Nevertheless, due to the cross-linguistically low prevalence of causative-antipassive syncretism, it is described for both languages below.

Causative-antipassive syncretism in Makalero is more specifically of type 1a and characterised by the suffix *-ini* (derived from the verb *kini* 'to do/make;' Huber 2011: 128) as illustrated in the causative voice relation (260↔261) and the antipassive voice relation (262↔263) below. As explicitly noted by Huber (2011), the suffix in question "can function to either add or remove a participant to or from the sentence" (id.: 340). Observe that in the causative voice the suffix is obligatorily accompanied by the

auxiliary verb *mei* (vid. ex. 261) which has the meaning ‘to take’ “if used as a lexical verb” (id.: 203). However, as this verb does not constitute verbal marking, it is not considered to form part of the voice marking in the causative voice by the present study as already discussed in §3.2.1. Furthermore, note that from a language-specific perspective Huber argues that the causer and causee in the causative voice stand in separate clauses as the result of the inclusion of the said auxiliary verb (id.: 340). Nevertheless, the use of the said verb appears to be fully grammaticalised (with no indication of its original lexical meaning), and the causative example (261) is therefore treated as a single clause from a cross-linguistic perspective.

Makalero (Huber 2011)

260. *kopu ere hai da’al, ira hai mu’a-isa*
glass 1DEM NSIT break water NSIT ground-go.down
‘This glass broke and the water spilled.’ (id.: 340)

261. *mata ka’u=ni kopu ere mei=ni da’al-**ini***
child small=CTR glass 1DEM take=LINK break-ANTC
‘The child broke the glass.’ (ibid.)

262. *ani sedang heru=ua ei=ua so’ot ere heru*
1SG PROG cloth=REL 2S=REL want 1DEM weave
‘I’m weaving the cloth that you asked for.’ (id.: 299)

263. *tufuraa k-asu=ni uere=ni omar-ik’a lopu-ika’*
woman 3.UND-for=CTR 2.DEM=CTR stilt.house-up.in house-up.in
*isa-**ini** tina-**ini** heru-**ini***
bake-ANTP cook-ANTP weave-ANTP […]
‘(Work) for the women is to stay at home, bake, cook, weave, […]’ (id.: 341)

Causative-antipassive type 1b syncretism in Ganja Balanta is characterised by the suffix *-t*, as illustrated in the examples below (264-267). Observe that the verbs in the causative (264-265) and antipassive voices (266-267) differ in terms of verb class as indicated by the different infinitive vowels: verbs in the causative voice belong to a so-called class A or C (Creissels & Biaye 2016: 208), while verbs in the antipassive voice belong to class B (id.: 211; for more information on the verbal class differences, vid. id.: 142ff.). Furthermore, it can be noted that the suffix *-t* seemingly has the allomorph *-Vt* in the causative voice (e.g. *yisim* ‘to sneeze’ ↔ *yisim-it* ‘to make sb.

sneeze;' id.: 209) but not in the antipassive voice. Finally, observe that Creissels & Biaye only have attested the antipassive use of the suffix *-t* with four verb stems in Ganja Balanta (i.e. exx. 266-267 below as well as exx. 105-106 on page 92).

Ganja Balanta (Creissels & Biaye 2016: 209ff.)

264.	CAUS	*sɪɪg*	'to drink sth.'	↔	*sɪɪg-**t**.ɪ*	'to make sb. drink sth.'
265.	CAUS	*θɔɔb*	'to be(come) slim'	↔	*θɔɔb-**t**.ɪ*	'to make sb. be(come) slim'
266.	ANTP	*lɔt*	'to cook sth.'	↔	*lɔt-**t**.ɛ*	'to cook [sth.]'
267.	ANTP	*sʊg*	a. 'to sew sth.' b. 'to sow sth.'	↔	*sʊg-**t**.ɛ*	a. 'to sew [sth.]' b. 'to sow [sth.]'

As noted in passing in relation to Makalero further above, the causative-antipassive suffix *-ini* in the said languages relates to the verb *kini* 'to do/make' (Huber 2011). Creissels (2015) points to a similar origin for the causative-antipassive syncretism characterised by the suffix *-ndì* in Bakel Soninke addressed at the beginning of this section. More specifically, Creissels proposes "that the Soninke antipassive and causative suffixes *-ndi* result from the grammaticalization of the same Proto-West-Mande verb (**tin* 'do') in two different constructions: a causative periphrasis and an antipassive periphrasis" (id.: 18). However, the more specific context as well as the order in which the causative and antipassive functions evolved remains obscure.

4.3.4 Causative-reflexive

Previous research on causative-reflexive appears to be very scant or altogether non-existent, as it has not been possible to find a single discussion of the phenomenon in the literature. It might be mentioned here that Pederson (1991) investigates "universals in the syncretism of reflexive and causative constructions," but treats reflexive and causative syncretism separately and does not address causative-reflexive syncretism. In the present study causative-reflexive syncretism has been attested in only two languages – the North Omotic language Wolaytta (AF) and the Northern Chukotko-Kamchatkan language Chukchi (EA) – wherefore the lack of literature concerning the phenomenon is not surprising. The causative-reflexive syncretism in both languages is part of more complex voice syncretism, for which reason they are addressed in more detail in the next chapter. However, due to the rare nature of causative-reflexive

syncretism and for the sake of illustration in this section, the syncretism is briefly exemplified for both languages here.

Causative-reflexive syncretism in Wolaytta is illustrated below by a causative voice relation (268↔269) and a passive voice relation (270↔271); the suffix *-ett* serves as voice marking in the causative voice (269) and the suffix *-ett/-étt* serves as voice marking in the passive voice (271). By comparison, in Chukchi the suffix *-et* serves as voice marking in both the reflexive (274-275) and causative voices, in the latter voice in combination with the prefix *r-/n-* (272-273). Evidently, causative-reflexive syncretism is of type 1b in Wolaytta and of type 2 in Chukchi. For more information about the syncretism in these languages, see §5.3.1 and §5.3.2, respectively.

Wolaytta (Wakasa 2008)

268. *hageeti* *7ubb-ái-kka* *maLL-óosona*
these all-NOM.M.SG-too be.tasty-IPFV.3PL
'These [bulbs of garlic, cabbages, onions] are all tasty.' (id.: 1072)

269. […] *zaar-ídi* *7á* *wáát-i* *maLL-**ett**-úuteetii?*
return-CONV.2PL it.ABS do.what-CONV.2PL be.tasty-CAUS-Q
'[…] how will you make it tasty again?' (id.: 797)

270. *7alb-é-nné* *tiit-ú* *banta-7aaw-áa* *bonc-óosona*
NAME-NOM-and NAME-NOM own-father-ABS.M.SG respect-IPFV.3PL
'Albe and Tito respect their father.' (id.: 706)

271. *bonc-**étt**-a*
respect-REFL-OPT.2SG
'Respect yourself!' (id.: 1029)

Chukchi (Dunn 1999: 72, 206; 256; Kurebito 2012: 186; ibid.)

272. CAUS *qit* 'to freeze' ↔ ***r-/n-ə-qit-et*** 'to freeze sth.'
273. CAUS *lw* 'to burn' ↔ ***r-/n-ə-lw-et*** 'to burn sth.'
274. REFL *ejup* 'to prick sb.' ↔ *ejup-**et*** 'to prick self'
275. REFL *qetw* 'to stab sb.' ↔ *qetw-**et*** 'to stab self'

It is difficult to draw any conclusions about the diachrony of causative-reflexive syncretism based on data from these languages alone; the diachrony of the Wolaytta suffix *-ett* (and *-étt*) is currently unknown, and the functions of the suffix *-et* is

described as having "unpredictable semantic or syntactic features" by Dunn (1999: 243) as further discussed in §4.4.5. Thus, this pattern is considered a quirk of voice syncretism for the time being.

4.3.5 Causative-reciprocal

Causative-reciprocal syncretism has been noted for a few languages in the literature, most notably for the Arawakan language Yine (or Piro; SA) in which the syncretism is characterised by the suffix *-kaka* (e.g. Nedjalkov & Sil'nickij 1969: 38; Kulikov & Nedjalkov 1992; Kulikov 2001: 894; Nedjalkov 2007d: 292). This language is included in the language sample of the present study and discussed in more detail in §5.3.1. Nedjalkov (2007d. 286) also observes causative-reciprocal syncretism in the related language Wayuu (or Guajiro) characterised by the suffix *-hira*. Unfortunately, however, it has not been possible to obtain concrete examples of this suffix, and the purported syncretism in the language can therefore not be confirmed here. Furthermore, Kulikov (2001: 894) argues that "[t]his rare type of syncretism" also occurs in some Austronesian languages, including the Oceanic languages Nakanai and Tangga (both PN), but provides no examples; see instead Johnston (1978: 181f.) and Nedjalkov (2007d: 286). In addition to these languages, causative-reciprocal syncretism can be found in, e.g., the Nilotic language Bari characterised by the prefix *tɔ-* (id.: 285) and in the Northern Atlantic language Wolof (both AF) characterised by the suffix *-e* (Creissels & Nougier-Voisin 2008), although the reciprocal function of the suffix *-e* in the latter language is "not very productive" (ibid.).

In addition to Yine, causative-reciprocal syncretism is attested in four languages in the language sample of the present study; as type 1 syncretism in the North Omotic language Wolaytta (AF); as type 2 syncretism in the Northwest Sumatra-Barrier Islands language Gayo (PN) and the Dizoid language Sheko (AF); and as type 3 syncretism in the language isolate Nivkh (EA). Causative-reciprocal syncretism has already been illustrated for the latter language in §3.2.4 (vid. exx. 136-139 p. 98) and is discussed for Wolaytta in §5.3.1, while it is described for Gayo and Sheko in this section.

In Gayo the suffix *-(n)en* serves as voice marking in both the causative (276↔277) and reciprocal voices, in the latter voice accompanied by the prefix *bersi-* (278↔279) or by the prefix *be(r)-* plus reduplication (e.g. *i-tulak* 'to push sb.' ↔ *be-te~tulak-an*

‘to push e.o.;’ Eades 2005: 154). According to Eades, the suffix in question has four allomorphs: *-nan* found on verb stems ending in the vowel /a/, *-nen* on verb stems ending in any other vowel, *-an* on consonant-final verb stems with the vowel /a/ in the last syllable (cf. ex. 279), and *-en* on consonant-final verb stems with any other vowel in the last syllable (id.: 39f.). Eades also notes that “[t]he forms *-nen* and *-nan* are often reduced to *-n*, which is in free variation with the longer forms” (ibid.; cf. ex. 277). Furthermore, observe the prefix *i-* in (278) which Eades (id.: 165ff.) considers an “undergoer orientation voice” marker in accordance with the linguistic tradition pertaining to Western Austronesian languages. However, Eades also argues that the phenomenon of voice in Gayo “contrasts with primarily syntactically motivated explanations for voice” and that “voice affixation signals the semantic macrorole of the subject argument in a clause that involves two semantic participants” (id.: 167). It is, for example, also possible to find the prefix on the causative verb *tangkuh-n* in (277) given the right context (i.e. *i-tangkuh-n*; id.: 14). In other words, the function of “voice” in Gayo is dependent primarily on discourse continuity, and is not considered voice marking in relation to the causative and reciprocal voices neither by Eades (id.: 162f., 186ff.) nor by the present study (§2.2.1).

Gayo (Eades 2005)

276. *rara pè muloi tangkuh ari jep jengkal ni tanoh*
fire even begin go.out from each span POSS earth
‘Fire began coming out of every inch of the earth.’ (id.: 14)

277. *tangkuh-**n**=é kude=é ari uer*
go.out-CAUS=3SBJ horse=3POSS from stable
‘He got the horse out of the stable.’ (id.: 187)

278. *i-tipak=è asu=a*
UND-kick=3SBJ dog=DEM
‘He kicked that dog.’ (id.: 171)

279. ***bersi**-tipak-**an** paké=a*
RECP-kick-RECP 3PL=DEM
‘They kicked each other.’ (id.: 162)

In Sheko the reciprocal voice is characterised by the suffix *-s-n* (282-283) which is composed of the causative suffix *-s* (280-281) and the suffix *-n* which can, for

instance, have an anticausative function (e.g. *gàz-* ‘to snap sth.’ ↔ *gàz-ǹ* ‘to snap;’ Hellenthal 2010: 384). As seen in the examples below (280-283), the causative suffix is generally “coupled with L tone on the verb stem and vowel shortening (if the root has a long vowel)” (id.: 373). Hellenthal explicitly addresses the causative-passive syncretism in Sheko, and comments that syncretism of this kind is uncommon in other Omotic languages (id.: 395).

Sheko (Hellenthal 2010: 374; ibid.; 394; 195, 433)

280.	CAUS	*sár-*	‘to be hot’	↔	*sar-**s***	‘to heat sth.’
281.	CAUS	*door-*	‘to run’	↔	*dor-**s***	‘to make sb. run’
282.	RECP	*tùfkù-*	‘to bump into sb.’	↔	*tùfkù-**s-ǹ***	‘to bump into e.o.’
283.	RECP	*t’ùùs-*	‘to know sb.’	↔	*t’ùs-**ùs-ǹ***	‘to know e.o.’

The diachrony of causative-reciprocal syncretism is not well-known, but as discussed later in §7.2.5, there is some cross-linguistic evidence for a reciprocal origin, in part facilitated by comitativity. By contrast, there does not appear to be any evidence for causative voice marking developing a reciprocal function at the time being. It might be noted that the causative-reciprocal syncretism mentioned for the Oceanic language Nakanai (PN) mentioned in the beginning of this section seems to be the result of coincidental phonological convergence of Proto-Oceanic reciprocal **paRi-* and causative **paka-* due to the loss of the phonemes **R* and **k* in the aforementioned language (Nedjalkov 2007: 286); e.g. *va-ubi* ‘to shoot each other’ and *va-lolo* ‘to make sb. hear sth.’ The diachrony of **paRi-* is discussed in more detail in §7.2.1, §7.2.2, and §7.2.4.

4.3.6 Causative-anticausative

Discussions of causative-anticausative syncretism in the typological literature are difficult to come by. Zúñiga & Kittilä (2019) state that they “have found only one clear case of it in the literature,” and further argue that “[t]he causative-anticausative syncretism is especially striking, given the semantic and syntactic disparity of the two effects” (id.: 244). The clear case of causative-anticausative syncretism mentioned by Zúñiga & Kittilä comes from the language isolate Ainu (EA) which is included in the

language sample of the present study and therefore discussed addressed in more detail further below. Nevertheless, it is worth noting that causative-anticausative syncretism has in fact been observed in at least one other language in the literature, Japanese (EA). For instance, Comrie (2006: 310) remarks that "[o]ne of the striking characteristics of inchoative-causative pairs in Japanese is that the suffix *-e* is used with some verbs to mark the inchoative, with other verbs to mark the causative," and goes on to provide two "[c]omprehensive lists of 36 pairs where *-e* marks the anticausative and 57 where it marks the causative" (ibid.; cf. Jacobsen 1982: 197ff.). The "inchoative" mentioned by Comrie is compatible with the anticausative voice in the present study. Some of the abovementioned 93 verbal pairs are also listed by Haspelmath (1993: 116). For the sake of illustration, consider the following voice relations in Japanese: *sizum-* 'to sink' ↔ *sizum-e-* 'to sink sth.,' *or-* 'to break sth.' ↔ *or-e-* 'to break' (Comrie 2006: 311f.). Note that the verbs in the original source are followed by the non-past suffix *-(r)u* which has here been omitted for clarity.

In addition to Ainu, causative-anticausative syncretism has been attested in four other languages in the sample of the present study; as type 1 syncretism in Korean, the Ugric language Northern Mansi (both EA), and the language isolate Kutenai (NA); and as type 2 syncretism in the Northern Chukotko-Kamchatkan language Chukchi (EA). The causative-anticausative syncretism in Ainu is of type 1 as well. The syncretism has already been described for the aforementioned language and Northern Mansi in §3.2.1 (vid. exx. 72-75, 76-79 p. 88) and for Kutenai in §3.2.2 (vid. exx. 94-95 p. 91), while it is discussed for Korean and Chukchi in §5.3.1 and §5.2.2, respectively. However, due to the little attention causative-anticausative syncretism has received in the literature, the syncretism is briefly exemplified for each of the abovementioned languages in this section as well. For instance, fully glossed examples illustrating causative-anticausative type 2 syncretism in Chukchi are provided below in the form of a causative voice relation (284↔285) and an anticausative voice relation (286↔287). As seen in these examples, the suffix *-et* in Chukchi serves as voice marking in both the anticausative (287) and causative voices, in the latter in combination with the prefix *r-/n-* (285). It is worth noting, however, that the anticausative use of the suffix is only marginally productive, attested with just three verbs (Kurebito 2012: 187).

Chukchi

284. *qeryəsʔ-ə-n* *sinit* *went-ə-ɣʔ-i*
window-E-ABS.SG self open-TH-3SG.SBJ
'A window opened itself.' (Stenin 2017: 6)

285. *ɣem-nan* *qeryəsʔ-ə-n* *t-ə-**n**-went-**et**-ɣʔe-n*
1SG-ERG window-E-ABS.SG 1SG-E-CAUS-open-CAUS-TH-3SG.OBJ
'I opened a window.' (ibid.)

286. *t-ejp-ɣʔe-n* *qeryəsʔ-ə-n*
1SG-close-TH-3SG.OBJ window-E-ABS.SG
'I closed the window.' (Kurebito 2012: 187)

287. *qeryəsʔ-ə-n* *ejp-**et**-ɣʔ-i*
window-E-ABS.SG close-ANTC-TH-3SG.SBJ
'The window closed.' (ibid.)

Causative-anticausative type 1a syncretism is characterised by the suffix *-(C)i* in Korean (288-291), by the suffix *-ke* in Ainu (292-297), and by the suffix *-l* in Northern Mansi (298-303). Note that in the two latter languages the illustrated anticausative voices are defined according to an indeterminate causative-anticausative voice relation, and the marking in the voices is thus in variation with verbal marking in the contrasting causative voices (§2.2.4). As noted by Zúñiga & Kittilä (2019: 244), "[t]his may aid the speakers in keeping the two functions of this syncretic marker apart."

Korean (H.-M. Sohn 1999: 375; Baek 1997: 82f.)

288.	CAUS	*cwul-*	'to decrease'	↔	*cwul-**li**-*	'to reduce sth.'
289.	CAUS	*nwup-*	'to lie down'	↔	*nwup-**hi**-*	'to lay sth.'
290.	ANTC	*yel-*	'to open sth.'	↔	*yel-**li**-*	'to open'
291.	ANTC	*mak-*	'to block sth.'	↔	*mak-**hi**-*	'to block'

Ainu (Shibatani 1990: 44)

292.	CAUS	*ray*	'to die'	↔	*ray-**ke***	'to kill sb.'
293.	CAUS	*ahun*	'to enter'	↔	*ahun-**ke***	'to make sb. enter'
294.	CAUS	*sat*	'to dry'	↔	*sat-**ke***	'to dry sth.'
295.	ANTC	*mak-a*	'to open sth.'	↔	*mak-**ke***	'to open'
296.	ANTC	*kom-o*	'to bend sth.'	↔	*kom-**ke***	'to bend'
297.	ANTC	*mes-u*	'to tear sth. off'	↔	*mes-**ke***	'to come off'

Northern Mansi (Rombandeeva 1973: 154, 160)

298.	CAUS	*pons-*	‘to cure’	↔	*pons-**l**-*	‘to cure sth.’
299.	CAUS	*tōs-*	‘to dry’	↔	*tōs-**l**-*	‘to dry sth.’
300.	CAUS	*āst-*	‘to end’	↔	*āst-**l**-*	‘to end sth.’
301.	ANTC	*sawa-t-*	‘to torment sb.’	↔	*sawa-**l**-*	‘to suffer’
302.	ANTC	*xarɨɣ-t-*	‘to extinguish sth.’	↔	*xarɨɣ-**l**-*	‘to extinguish’
303.	ANTC	*xali-t-*	‘to split sth.’	↔	*xali-**l**-*	‘to split’

Finally, causative-anticausative type 1b in Kutenai is characterised by a glottal stop *-ʔ* (304-307) which has the allomorph *-p* in the anticausative voice but not in the causative voice. As already noted in §3.2.2, the anticausative allomorph *-ʔ* appears before “the invariantly encliticized Indicate Marker /ɲi/, and the invariantly encliticized Locative Marker /ʞki/” (Morgan 1991: 336) and the allomorph *-p* elsewhere; compare *¢ʾaqa-ʔ-ni* ‘it (proximate) is greasy’ and *¢ʾaqa-p-si* ‘it (obviate) is greasy’ (ibid.). Note that the suffixal *-a* in (305) is simply epenthetic.

Kutenai (Morgan 1991: 25; 297; 336; 337)

304.	CAUS	*yiḱta*	‘to spill’	↔	*yiḱta-**ʔ***	‘to spill sth.’
305.	CAUS	*ʔiʔtwum*	‘to become pregnant’	↔	*ʔiʔtwum-a-**ʔ***	‘to impregnate sb.’
306.	ANTC	*¢ʾaqa*	‘to grease sth.’	↔	*¢ʾaqa-**ʔ***	‘to be greasy’
307.	ANTC	*¢uku*	‘to light sth.’	↔	*¢uku-**ʔ***	‘to become lit’

As discussed later in §7.5.1, the causative-anticausative syncretism in Korean is very likely of causative origin, and the same might be true for the said syncretism in Ainu. By contrast, there is currently no evidence for anticausative voice marking developing a causative function.

4.4 Applicative syncretism

Applicative syncretism refers to simplex voice syncretism involving the applicative voice and one of the other voices of focus in this study except the causative voice: applicative-passive (§4.4.1), applicative-antipassive (§4.4.2), applicative-reflexive (§4.4.3), applicative-reciprocal (§4.4.4), and applicative-anticausative (§4.4.5). These patterns of applicative syncretism are among the least common patterns of voice syncretism attested in the language sample of the present study; in fact, applicative-

anticausative syncretism is not attested in a single language. In any case, each of the patterns is addressed and discussed in its own right in the following sections.

4.4.1 Applicative-passive

Applicative-passive syncretism has received little prior explicit treatment in the literature, though it has been extensively discussed implicitly in relation the syncretism between the passive voice and a so-called "adversative passive" in some languages which qualifies as applicative-passive syncretism in the present study (§2.2.5). For instance, consider Japanese (EA) *koros-* 'to kill sb.' ↔ *koros-are-* 'to be killed [by sb.],' *sin-* 'to die' ↔ *sin-are-* 'to die to the detriment of sb.' (Zúñiga & Kittilä 2019: 244); see also, e.g., Malchukov & Nedjalkov (2015: 608f.) on the Tungusic language Evenki. Zúñiga & Kittilä (2019) discusses the former voice relation in terms of "subjective undergoer nucleatives" because "unlike applicatives, these operations install these [non-agentive] arguments as subjects" (id.: 81). This distinction is not maintained in the present study, and both qualify as applicative here. Applicative-passive type 1 syncretism similar to that noted for Japanese above can be found in the related Japonic language Irabu which is included in the language sample of the present study. The syncretism in question is additionally attested in the language isolate Kutenai (NA); and as type 2 syncretism in the Panoan language Chácobo, and as type 3 syncretism in the language isolate Mosetén (both SA). The syncretism has already been discussed for Mosetén in §3.2.4 (vid. exx. 124-127 p. 96), while it is described for Kutenai and Chácobo in §5.3.3 as the said syncretism in these languages forms part of more complex voice syncretism. In turn, applicative-passive syncretism is illustrated for Irabu below.

Fully glossed examples of the abovementioned syncretism in Irabu are provided below in the form of an applicative voice relation (308↔309) and a passive voice relation (310↔311). Note that a similar applicative voice relation has already been discussed in §2.2.2 (vid. exx. 54-55 p. 66). As evident from these examples, the suffix *-ai* in Irabu serves as voice marking in both the applicative (309) and passive voices (311). Observe that the suffix *-a* in (310) is simply a "thematic vowel" which is found on some verbs when followed by "certain inflectional suffixes," including the "finite irrealis intentional suffix *-di*" (Shimoji 2008: 260f.). Moreover, note that the

underlying stem in (310-311) is actually *ž*; the geminate form *žž* is the result of a "geminate copy insertion rule" described by Shimoji thus: "if underlyingly moraic //C// and //(G)V// are adjacent in a word-plus, then a geminate copy of //C// is inserted to produce a surface /C_iC_i(G)V/" (id.: 69). This rule applies to both the thematic vowel *-a* (id.: 70) and the applicative-passive suffix *-ai* (id.: 297).

Irabu (Shimoji 2008)

308. *taugagara=nu* *jaa=ju=du* *tur-tar*
someone=NOM house=ACC=FOC take-PST
'Someone took a house (by force).' (id.: 496)

309. *kari=a* *taugagara=n* *jaa=ju=du* *tur-**ai**-tar*
3SG=TOP someone=DAT house=ACC=FOC take-APPL-PST
'He was troubled (by the fact that) someone took his house (by force).' (ibid.)

310. *ba=ga* *ffa-gama=u=du* *žž-a-di*
1SG=NOM child-DIM=ACC=FOC scold-TH-INT
'I will scold (my) little child.' (id.: 193)

311. *ba=a* *sinsii=n=du* *žž-**ai**-tar*
1SG=TOP teacher=DAT=FOC scold-PASS-PST
'I was scolded by the teacher.' (id.: 297)

Zúñiga & Kittilä (2019) plausibly suggest that the similarity between passives and the "subjective undergoer nucleatives" mentioned further above (which are considered applicative here) "is unsurprising given the grammatical relations involved in both kinds of constructions" (id.: 244). Here they refer to the similarities in how the semantic participant which is not the agent in the passive voice and the applicative participant in the applicative voice (in their terminology, the subjects; id.: 76ff.) are treated (cf. *kari=a* 'he' in ex. 309, *ba=a* 'I' in ex. 311).

4.4.2 Applicative-antipassive

Applicative-antipassive syncretism has received some attention in the literature, although discussions of the syncretism remain largely sporadic. The syncretism has notably been discussed repeatedly in relation to the Eskimo language Central Alaskan Yupik (NA; e.g. Malchukov 2015: 121f.; 2016: 405ff.; 2017: 13ff.; Zúñiga & Kittilä

2019: 243; Basilico 2019: 210ff.). Malchukov and Zúñiga & Kittilä also mention applicative-antipassive syncretism in the Northern Chukotko-Kamchatkan language Chukchi (EA); and Malchukov addresses the said syncretism in the Interior Salish language Sliammon and the Central Salish language Halkomelem (NA). Both Central Alaskan Yupik and Chukchi are included in the language sample of the present study and thus addressed in more detail further below. The Interior and Central Salish genera are represented in the language sample by the languages Nxa'amxcin and Musqueam, respectively, but applicative-antipassive syncretism is not attested in these languages (Willett 2013, Suttles 2004). Additionally, it is worth observing that Valenzuela (2016) has explicitly addressed applicative-antipassive syncretism in the Cahuapanan language Shiwilu, and even suggests that "Shiwilu's sister language" Shawi features the syncretism in question a well (id.: 524ff.); cf. Shiwilu *lamapu'*- 'to scream' ↔ *lamapu'-tu*- 'to scream at sb.,' *panu*- 'to give sth. as a present to sb.' ↔ *panu-tu*- 'to give sth. as a present [to sb.]' (ibid).

In addition to Central Alaskan Yupik and Chukchi, applicative-antipassive syncretism has only been attested in one other language in the language sample of this study, the Gunwinyguan language Nunggubuyu (AU). The syncretism in question is of type 1 in Central Alaskan Yupik and Chukchi, but of type 3 in Nunggubuyu. The syncretism in Nunggubuyu has already been addressed in §3.2.4, while it is discussed for Central Alaskan Yupik and Chukchi here. Interestingly, Central Alaskan Yupik possesses two suffixes that can serve as voice marking in both the applicative and antipassive voices, *-ut* and *-i* (with the respective underlying forms |*-uc*| and |*-ɣi*| according to Miyaoka 2012: 830ff.). The former suffix even serves as voice marking in the reciprocal voice, for which reason it is discussed in more detail in §5.2.3 in relation to complex voice syncretism. By contrast, the functions of the latter suffix are illustrated below by an applicative voice relation (312↔313) and an antipassive voice relation (314↔315).

Central Alaskan Yupik (Miyaoka 2012)

312. *nakmiilla-a* *tuqu-uq*
own-ABS.3SG.SG die-IND.3SG
'His real offspring died.' (id.: 396)

313. *tuqu-**i**-gaqa* *nulia-qa*
die-APPL-IND.1SG.3SG wife-ABS.1SG.SG
‘My wife died on me.’ (id.: 836)

314. *qimugta* *tamar-aqa*
dog.ABS.SG lose-IND.1SG:3SG
‘I lost the dog.’ (id.: 517)

315. *angun* [*qimugte-mek*] *tamar-**i**-uq*
man.ABS.SG dog-ABL.SG lose-ANTP-IND.3SG
‘The man lost [a dog].’ (ibid.)

In Chukchi applicative-antipassive syncretism is characterised by the prefix *ine-* or *ena-* (depending on vowel harmony; Dunn 1999: 48) as exemplified by the applicative (316↔317) and the antipassive voice relations (318↔319) below. Note that the underlying stem in both (316) and (317) is the same (i.e. *jme*); the schwa in the former example is epenthetic (id.: 39ff.).

Chukchi (Dunn 1999)

316. *ətlʔa-ta* *jəme-nenat* *ewirʔ-ə-t*
mother-ERG hang-3SG:3PL clothing-EP-3PL.ABS
‘Mother hung up the clothes.’ (id.: 215)

317. *ətlʔa-ta* ***ena**-jme-nen* *tətəl* *meniɣ-e*
mother-ERG APPL-hang-3SG:3SG door.3SG.ABS cloth-INST
‘Mother hung the door with cloth.’ (ibid.)

318. *ɣəmnan* *t-ə-n-walom-at-ə-nat* *ənpənacɣ-ə-t*
1SG.ERG 1SG.A-EP-CAUS-hear/understand-CAUS-EP-3PL.O old.man-EP-3PL.ABS
‘I informed the old men.’ (id.: 212)

319. *ɣəmo* *t-**ena**-n-walom-at-ə-k*
1SG.ABS 1SG-ANTP-CAUS-hear/understand-CAUS-EP-1SG
‘I made an announcement.’ (id.: 216)

It is argued later in §7.6.2 that the applicative-antipassive syncretism in Central Alaskan Yupik is likely of applicative(-reciprocal) origin. Little is otherwise known about the diachronic development of applicative-antipassive syncretism. Malchukov (2017: 24) suggests that “applicatives of transitives share the feature of P-demotion with antipassives” which provides a plausible explanation for the syncretism, at least

from a syntactic point of view; semantically all semantic participant remain in place in the passive voice.

4.4.3 Applicative-reflexive

It has not been possible to find any discussion nor mentioning of applicative-reflexive syncretism in the literature, and the syncretism has only been marginally attested in the language sample of this study; as type 2 syncretism in the language isolate Kutenai (NA), and as type 3 syncretism in the language isolate Mosetén (SA) and in the Gunwinyguan language Nunggubuyu (AU). Applicative-reflexive type 1 syncretism remains unattested.

In Kutenai applicative-reflexive type 2 syncretism is characterised by an "Associative Suffix" *-m* (Morgan 1991: 309) which forms part of the voice marking in both the applicative (i.e. *-m-ał*) and reflexive voices (*-m-ik*) as illustrated in the voice relations (320↔321) and (322↔323) below. Morgan calls the additional suffix *-ik* in the reflexive voice marking simply a "Reflexive Suffix" (id.: 321), and the additional suffix *-ał* in the applicative voice marking a "Co-Participant Suffix" which "occurs nowhere else in the language" (id.: 313). Neither suffix seems to have a reflexive or applicative function without the abovementioned suffix *-m/-n*.

Kutenai (Morgan 1991)

320. […] *kaʔ* *kˬuˬ¢* *ʔaˑ-qał* *hałuqławut* […]
how SMˬCPˬFPT IM-be.thus-ADV fish
'[I wondered] how I was going to fish [in order to get the char to bite].' (id.: 292)

321. *taxa-s* *hu* *nˬałuqławut-**m**-ał-niˬ¢*
then-S3 1SG PMˬfish-ASSOC-APPL-INDˬand
'Then I went out fishing with her.' (id.: 313)

322. *huˬn* *ʔiktuquʔ-ni*
1SGˬPM wash-IND
'I washed him/her/it/them.' (id.: 363)

323. *huˬn* *ʔiktuquʔ-**m**-ik*
1SGˬPM wash-ASSOC-REFL
'I washed myself.' (id.: 381)

As discussed later in §7.2.6 and §7.6.1, reciprocity and applicativity can be diachronically facilitated by (as)sociativity, but in the case of Kutenai it is not entirely clear how the suffix *-m* has become part of reflexive voice marking. By comparison, reciprocity in the language is characterised by the suffix *-nam* which "appears to have originated as the inflectional Indefinite Human (Subject) Suffix /*-am*/, preceded by the N-Connector Suffix /*-n-*/" (Morgan 1991: 376).

4.4.4 Applicative-reciprocal

In the literature applicative-reciprocal syncretism has been discussed most notably by Nedjalkov who has noted the said syncretism in the Eskimo language West Greenlandic (NA; 2007c: 174), in the Bantu language Kinyarwanda (AF; 2007b: 42; 2007d: 275), and in the Turkic language Yakut (EA; 2007d: 237; Nedjalkov & Nedjalkov 2007). The applicative-reciprocal syncretism in Kinyarwanda is also addressed by Maslova (2007), while applicative-reciprocal syncretism among Bantu languages in general is discussed by Bostoen et al. (2015). These languages are all discussed in more detail later in §7.2.6 and §7.6.1.

Discussions of applicative-reciprocal syncretism are otherwise rather uncommon, yet the syncretism in question is undoubtedly the most common pattern of applicative syncretism in the language sample of the present study being attested in eleven languages. The syncretism is found as type 1 syncretism in the Eskimo language Central Alaskan Yupik, the language isolate Yuchi (both NA), and the Ju-Kung language Western !Xun (AF); as type 2 syncretism in the Siouan language Assiniboine (NA), the Tibeto-Burman language Galo (EA), the Malayo-Sumbawan language Madurese (PN), the Central Cushitic language Khimt'anga (AF), and the Arauan language Kulina (SA); and as type 3 syncretism in the language isolate Mosetén, the Nadahup language Hup (both SA), and the Gunwinyguan language Nunggubuyu (AU). The syncretism has already been exemplified for Western !Xun in §3.2.1, and for Mosetén, Hup, and Nunggubuyu in §3.2.4. Applicative-reciprocal syncretism in the remaining languages is described below.

Applicative-reciprocal syncretism in Central Alaskan Yupik is illustrated below by fully glossed applicative (324↔325) and reciprocal voice relations (326↔327). As seen in these examples, the suffix *-ut* (with the underlying form |*-uc*| according to

Miyaoka 2012: 830ff.) can serve as voice marking in both the applicative (325) and reciprocal voices (327) in addition to the antipassive voice (§5.2.3). The suffix can optionally be accompanied by a reflexive/reciprocal pronoun in the reciprocal voice (id.: 928), as is the case in example (327). The diachrony of the suffix *-ut* is discussed in §7.2.4, §7.6.1, and §7.6.2.

Central Alaskan Yupik (Miyaoka 2012)

324. *angute-m* *ner-aa* *neqa*
man-REL.SG eat-IND.3SG:3SG fish.ABS.SG
'The man is eating the fish.' (id.: 844)

325. *ner-**ut**-aa* *neq-mek* *angun*
eat-APPL-IND.3SG:3SG fish-ABM.SG man.ABL.SG
'She is eating fish with the man.' (id.: 953)

326. *tangrr-aqa* *kenurraq* *qull-ra-mni*
see-IND.1SG:3SG lamp.ABS.SG area.above-just-LOC.1SG.SG
'I saw the lamp just right above me.' (id.: 656)

327. *aana-ka* *kass'aq=llu* *tangrr-**ut**-uk* *ellmeg-nek*
mother-ABS.1SG.SG white.man.ABS.SG=and see-RECP-IND.3DU 3DU-ABM
'My mother and the white man see each other.' (id.: 929)

In Yuchi applicative-reciprocal syncretism appears to be have developed rather recently. Linn (2000: 251, 265) argues that historically the "accompaniment" prefix *k'ã-* has served as voice marking in the applicative voice, while the prefix *k'a-* has served as voice marking in the reciprocal voice. However, Linn further remarks that "[s]ome speakers today make no difference in pronunciation between the reciprocal prefix and the accompaniment prefix" and that "some speakers pronounce both *k'æ*" or *k'a-* (id.: 251). The present resemblance between the voice marking in the applicative and reciprocal voices in the language is illustrated in examples below (328-331). Nevertheless, note that the variation in pronunciation of the prefix in the applicative voice remains visible to some extent in the language – at least in Linn's grammar. For instance, Linn lists the applicative verbs in examples (328-329) elsewhere as *k'ã-thla* and *k'ã-gõ* (id.: 254).

Yuchi (Linn 2000: 213; ibid.; 148f., 253; 226, 254)

328.	APPL	*gõ*	'to come'	↔	***k'a-gõ***	'to bring/come with sb.'
329.	APPL	*thla*	'to go'	↔	***k'a-thla***	'to carry/go with sb.'
330.	RECP	*'nẽ*	'to see/meet sb.'	↔	***k'a-'nẽ***	'to see/meet e.o.'
331.	RECP	*'yuhõ*	'to embrace sb.'	↔	***k'a-'yuhõ***	'to embrace e.o.'

In Assiniboine the prefixes *ki-* and *kíci-* both serve as voice marking in the applicative voice (332-335), while the prefix *kic^{h}i-* serves as voice marking in the reciprocal voice (336-337). Cumberland (2005) calls these suffixes "KI morphemes" because "they have related meanings, share phonological characteristics, and have similar phonetic shapes that are likely due to a common historical source," i.e. *ki-* (id.: 258). Note that at least the two former suffixes sometimes appear as infixes (cf. exx. 333, 335) and that the stress is fixed on the affix *kíci-* but not on the other two affixes (cf. exx. 332-333; the stress pattern in examples 336-337 appears in the third person, while the stress pattern *kíc^{h}i-* appears in the first person; id.: 270). For more examples of the prefixes *ki-* and *kic^{h}i-*, see examples (112-114) on page 94.

Assiniboine (Cumberland 2005: 263ff., 270f.)

332.	APPL	*kté*	'to kill sb.'	↔	***ki-kté***	'to kill sb. for sb.'
333.	APPL	*ịcú*	'to smoke'	↔	*ị<**kí**>cu*	'to smoke for sb.'
334.	APPL	*nową́*	'to sing'	↔	***kíci-nową***	'to sing for sb.'
335.	APPL	*iyúškị*	'to admire sb.'	↔	*i<**kíci**>yuškị*	'to admire sb. for sb.'
336.	RECP	*kté*	'to kill sb.'	↔	***kic^{h}í-kte***	'to kill e.o.'
337.	RECP	*yaʔịškata*	'to tease sb.'	↔	***kic^{h}í-yaʔịškata***	'to tease e.o.'

In Galo the suffix *-ŕɨ́k* serves as voice marking in both the applicative (338-339) and reciprocal voices, in the latter in combination with the suffix *-hí* (340-341). Post (2007: 530f.) speculates that the former suffix *-ŕɨ́k* can "presumably reconstruct to Proto-Tani" with the sense 'to meet.' The latter suffix, in turn, has a reflexive function (ibid.); e.g. *pá-* 'to cut sth. (id.: 137) ↔ *pá-hí-* 'to cut self' (id.: 541). Likewise, in Kulina the prefix *ka-* serves as voice marking in both the applicative (342-343) and reciprocal voices, in the latter in combination with the suffix *-ra* forming a circumfix (344-345); the *-k-* in (344) is epenthetic. In Kulina "non-inflecting verbs are followed by an auxiliary, which takes the inflectional affixes" (Dienst 2014: 7); accordingly,

the voice marking *ka-…-ra* is found on the auxiliary verb *na* (lit. ‘to say’) in (344). Compare also applicative *haha ka-na* ‘to laugh at stb.’ (id.: 103). Furthermore, note that Kulina makes a distinction between dual and plural reciprocals (id.: 129ff.): the voice marking in examples (344-345) represents dual reciprocity, while plural reciprocity is expressed by the prefix *ka-* accompanied by full reduplication, e.g. *bishi~bishi ka-na* ‘to pinch e.o.’ (id.: 131).

Galo (Post 2007: 935, 530; ibid., 134; 137, 530, 725; 152, 519, 543)

338.	APPL	*dàk*	‘to stand’	↔	*dàk-**ŕɨk***	‘to stand up next to sb.’
339.	APPL	*ín*	‘to go’	↔	*ín-**ŕɨk***	‘to go to sb.’
340.	RECP	*pá*	‘to chop sth.’	↔	*pá-**ŕɨk-hí***	‘to cut e.o.’
341.	RECP	*záp*	‘to talk to sb.’	↔	*záp-**ŕɨk-hí***	‘to talk to e.o.’

Kulina (Dienst 2014: 128f.; 114, 249, 287ff.; 78, 139; 175, 185, 130)

342.	APPL	*maiza*	‘to lie’	↔	***ka**-maiza*	‘to lie to sb.’ (‘to cheat sb.’)
343.	APPL	*kha*	‘to go’	↔	***ka**-kha*	‘to go with sth.’ (‘to bring/take sth.’)
344.	RECP	*bishi na*[14]	‘to pinch sb.’	↔	*bishi **ka**-na-**ra***	‘to pinch e.o.’
345.	RECP	*ida*	‘to beat sb.’	↔	***ka**-k-ida-**ra***	‘to beat e.o.’ (‘to fight’)

In Madurese the suffix *-an* (or *-wan/-yan* due to glide epenthesis; Davies 2010: 41f.) serves as voice marking in both the applicative and reciprocal voices. The suffix in question is accompanied by the prefix *ka-* in the former voice (346-347), and by partial reduplication in the latter voice (348-349). In Khimt’anga full reduplication forms part of the voice marking in both the applicative and reciprocal voices, in the former accompanied by the suffix *-(ɨ)s* (350-351) and in the latter by the suffix *-ʃɨt/-ʃɨt* (352-353); the schwa is a “linking vowel” (Belay 2015: xxi). Note that the former suffix in Khimt’anga also serves as voice marking in the causative voice (cf. exx. 225-

[14] In the original example the verb appears as *bishi ta-[…]* (Dienst 2014: 78) but is here cited *bishi na* for clarity; the form *ta-* results from the fusion of a third person marker *to-* and the auxiliary verb *na* (id.: 141; i.e. **to-na-* > *ta-*).

226 p. 127) and the latter suffix as voice marking in the passive voice; e.g. *χʷ-* ‘to eat sth.’ ↔ *χʷ-**i**ʃit-* ‘to be eaten [by sb.]’ (Belay 2015: 235).

Madurese (Davies 2010: 279, 104; ibid.; 425f.; 168, 252, 426)

346.	APPL	*gaggar*	‘to fall’	↔	***ka**-gaggar-**an***	‘to fall to the detriment of sb.’
347.	APPL	*robbu*	‘to collapse’	↔	***ka**-robbu-**wan***	‘to collapse to the detriment of sb.’
348.	RECP	*pokol*	‘to hit sth.’	↔	***kol**~pokol-**an***	‘to hit e.o.’
349.	RECP	*kerem*	‘to send sth. to sb.’	↔	***rem**~kerem-**an***	‘to send e.o. sth.’

Khimt’anga (Belay 2015: 232, 237; 231, 235; 239; 162, 168)

350.	APPL	*dʒɨiβ-*	‘to buy sth.’	↔	***dʒɨiβ-ə-**dʒɨiβ-**is-***	‘to buy sth. with the support of sb.’
351.	APPL	*kil-*	‘to break sth.’	↔	***kil-ə-**kil-**s-***	‘to break sth. with the support of sb.’
352.	RECP	*kil-*	‘to break sth.’	↔	***kil-ə-**kil-**ʃit-***	‘to break e.o.’
353.	RECP	*qal-*	‘to see sth.’	↔	***qal-ə-**qal-**ʃit-***	‘to see e.o.’

The diachrony of applicative-reciprocal syncretism is discussed in §7.2.6 and §7.6.1. As demonstrated in these sections, there is some diachronic evidence for both applicative-reciprocal syncretism of applicative origin and applicative-reciprocal of reciprocal origin.

4.4.5 Applicative-anticausative

Applicative-anticausative syncretism appears to be the rarest of the 21 simplex patterns of voice syncretism covered in this chapter and is not attested in a single language in the language sample of the present study. However, it can be mentioned here that there is potentially a vague hint of applicative-anticausative type 2 syncretism in the Northern Chukotko-Kamchatkan language Chukchi (EA), but it cannot be regarded as productive. The language in question has a “verb deriver” *-et*/*-at* (depending on vowel harmony; Dunn 1999: 48) which performs “a range of generally unpredictable morphological functions, including derivation of verbs from other word classes, acting as thematic suffixes with other derivational prefixes, and marking

certain forms as having unpredictable semantic or syntactic features" (id.: 243). The suffix in question can, for instance, serve as voice marking in the anticausative voice together with three verbs (Kurebito 2012: 187; see also Dunn 1999: 256; cf. exx. 355-357), and apparently also in the applicative voice with a single verb, *wetɣaw-* 'to speak.' In the latter case, the suffix is accompanied by the prefix *r-/n-* (Dunn 1999: 199, 213; cf. ex. 354). While the anticausative function is acknowledged in the present study, the applicative function is not due to the lack of other examples like (354).

Chukchi

354.	?APPL	*wetɣaw*	'to speak'	↔	***r-/n-wetɣa-at***	'to speak to sb.'
355.	ANTC	*ejp-*	'to close sth.'	↔	*ejp-**et***	'to close'
356.	ANTC	*tejwŋ-*	'to divide sth.'	↔	*tejwŋ-**et***	'to divide'
357.	ANTC	*pela-*	'to leave sth.' (i.e. 'to make sth. remain')	↔	*pela-**(e)t***	'to remain'

Furthermore, observe that McGill (2009) claims that in the language Kainji language Cicipu (AF) "[t]he anticausative suffix *-wA* is formally identical to the applicative suffix" (id.: 223); e.g. *dúkwà* 'to go' (id.: 134) ↔ *dúkwà-wà* 'to go with sb.' (id.: 223), *sídû* 'to heat sth.' (id.: 224) ↔ *sídû-wà* ?'to spoil' (i.e. 'to get hot;' id.: 142). However, McGill also argues that "[t]he function of the anticausative is to downplay the role of the agent/causer in the event denoted by the verb, so much so that it cannot be expressed at all" (id.: 224). This description suggests that there is a causer (although it is "downplayed" and cannot be expressed syntactically) in the purported anticausative, in which case the voice is probably better treated as absolute passive. Note, for instance, that McGill translates the verb *sídû-wà* elsewhere 'the water got heated' (id.: 224). The limited data provided by McGill does not shed further light upon the matter, and for the time being it remains inconclusive whether or not Cicipu features applicative-anticausative syncretism.

4.5 Summary

As demonstrated in the preceding sections, 19 of the 21 simplex patterns of voice syncretism listed at the beginning of this chapter are attested as type 1 syncretism among the languages in the language sample of the present study. The remaining two

patterns are applicative-reflexive syncretism and applicative-anticausative syncretism, the former pattern of which is attested as type 2 syncretism in the language isolate Kutenai (NA) while the latter pattern remains unattested altogether. This is not particularly surprising considering the seemingly disparate functions of the voices involved in the said syncretism. For instance, in the latter case the applicative voice is generally associated with a reduction in semantic participants, while the anticausative voice is associated with an increase. Likewise, it is difficult to conceive a hypothetical context in which applicative-reflexive syncretism would arise; as noted in §4.4.3, it has not been possible to resolve the diachrony of this syncretism in Kutenai.

Unsurprisingly, patterns of middle syncretism were found to be most prevalent among the languages in the sample which seems to correlate with the amount of attention these patterns have received in the literature. Thus, the findings of this chapter in many ways confirm the general assumption that middle syncretism is more common cross-linguistically than other sorts of voice syncretism. Nevertheless, it was also noted that antipassive syncretism is comparatively frequent cross-linguistically which supports the view that such syncretism might deserve more focus than it has hitherto received (cf. Janic 2010). By contrast, most patterns of causative and applicative syncretism are notably more rare among the languages of the sample with the exception of causative-applicative and causative-passive syncretism. Indeed, the former pattern is cross-linguistically more prevalent than most patterns of both middle and antipassive syncretism and thereby confirms Malchukov's (2017: 10) suspicion that the said syncretism "seems actually to be more widespread crosslinguistically than reported." All other patterns of causative and applicative syncretism are attested as type 1 syncretism in no more than five languages each. Nevertheless, as shown later in chapter 7, many of the patterns are not simply the result of coincidental phonological convergence but can be explained diachronically in functional terms. Thus, the attestations of the aforementioned patterns, albeit marginally, importantly show that voice syncretism appears to be a more intricate phenomenon than hitherto acknowledged.

Examples of each of the patterns of type 1 voice syncretism covered in this chapter are provided in table 12 on the next page for easy reference. The examples are listed in the same order as they have been discussed in the preceding sections; sources for

the examples can be found by following the page numbers. Note that the Wolaytta examples come from §5.3.1 in the next chapter.

Table 12. Overview of simplex voice syncretism

Arapaho (NA)	REFL-RECP	*eeneti3-**eti-*** ‘to speak to self’	↔	*eeneti3-**eti-*** ‘to speak to e.o.’	(p. 103)
Yeri (PN)	REFL-ANTC	***d**-altou* ‘to cover self’	↔	***d**-awɨl* ‘to hang’	(p. 104)
Chukchi (EA)	RECP-ANTC	*ommačajpə-**tko-*** ‘to hug e.o.’	↔	*ejpə-**tku-*** ‘to close’	(p. 105)
Kayardild (AU)	PASS-REFL	*bala-**a-*** ‘to be hit [by sb.]’	↔	*bala-**a-*** ‘to hit self’	(p. 106)
Baraïn (AF)	PASS-RECP	*ɲárō-**ɟó*** ‘to be looked for [by sb.]’	↔	*ɲárō-**ɟó*** ‘to look for e.o.’	(p. 108)
Dhimal (EA)	PASS-ANTC	*cuma-**nha-*** ‘to be taken [by sb.]’	↔	*oŋ-**nha-*** ‘to cook’	(p .109)
Ese Ejja (SA)	ANTP-REFL	***xa**-ishwa-**ki-*** ‘to wait for [sth.]’	↔	***xa**-jabe-**ki-*** ‘to comb self’	(p. 113)
Tatar (EA)	ANTP-RECP	*jaz-**əš-*** ‘to write [sth.]’	↔	*sug-**əš-*** ‘to hit e.o.’	(p. 115)
Majang (AF)	ANTP-ANTC	*káw-**ɗîː*** ‘to bite [sb.]’	↔	*ŋùːl-**ɗîː*** ‘to break’	(p. 117)
Mosetén (SA)	PASS-ANTP	*raem’ya-**ki-*** ‘to be bitten [by sb.]’	↔	*raem’ya-**ki-*** ‘to bite [sb.]’	(p. 121)
Ternate (PN)	CAUS-APPL	***si**-hotu* ‘to make sb. sleep’	↔	***si**-hoi* ‘to open sth. for sb.’	(p. 125)
Kilen (EA)	CAUS-PASS	*tanta-**wu*** ‘to make sb. hit sb.’	↔	*tanta-**wu*** ‘to be hit [by sb.]’	(p. 130)
G. Balanta (AF)	CAUS-ANTP	*sɯg-**t-*** ‘to make sb. drink sth.’	↔	*lɔt-**t-*** ‘to cook [sth.]’	(p. 134)
Wolaytta (AF)	CAUS-REFL	*maLL-**ett-*** ‘to make sth. tasty’	↔	*meeC-**ett-*** ‘to wash self’	(p. 171)
Wolaytta (AF)	CAUS-RECP	*Ceeg-**ett-*** ‘to make sth. narrow’	↔	*gílil-**ett-*** ‘to tickle e.o.’	(p. 171)
Korean (EA)	CAUS-ANTC	*cwul-**li-*** ‘to reduce sth.’	↔	*yel-**li-*** ‘to open’	(p. 140)
Irabu (EA)	APPL-PASS	*tur-**ai-*** ‘to take sth. affecting sb.’	↔	*žž-**ai-*** ‘to be scolded [by sb.]’	(p. 143)
C. A. Yupik (NA)	APPL-ANTP	*tuqu-**i-*** ‘to die affecting sb.’	↔	*tamar-**i-*** ‘to lose [sb.]’	(p. 145)
C. A. Yupik (NA)	APPL-RECP	*ner-**ut-*** ‘to eat with sb.’	↔	*tangrr-**ut-*** ‘to see e.o.’	(p. 148)

5 Complex voice syncretism

As defined in chapter 3, complex voice syncretism refers to voice marking shared by more than two of the seven voices of focus in this study (i.e. passive, antipassive, reflexive, reciprocal, anticausative, causative, applicative). Such complex syncretism logically entails patterns of simplex voice syncretism which denote voice marking shared by exactly two voices. The 21 patterns of simplex syncretism discussed in the previous chapter can combine to form 99 patterns of complex voice syncretism (cf. tab. 7 p. 70). However, only 24 patterns of complex voice syncretism are attested in the language sample, and these patterns serve as the focus of this chapter. Seventeen of the patterns involve three voices and six patterns involve four voices. These patterns are here divided into three groupings to facilitate their discussion in a convenient manner: middle syncretism (§5.1), antipassive syncretism (§5.2), and causative syncretism (§5.3).

Middle syncretism	**Antipassive syncretism**	**Causative syncretism**
REFL-RECP-ANTC	ANTP-REFL-RECP	CAUS-APPL-PASS
PASS-REFL-RECP	ANTP-REFL-ANTC	CAUS-PASS-RECP
PASS-REFL-ANTC	ANTP-RECP-ANTC	CAUS-PASS-REFL
PASS-RECP-ANTC	PASS-ANTP-REFL	CAUS-PASS-ANTC
PASS-REFL-RECP-ANTC	PASS-ANTP-RECP	CAUS-REFL-RECP
	PASS-ANTP-ANTC	CAUS-REFL-ANTC
	APPL-ANTP-RECP	CAUS-PASS-REFL-RECP
	ANTP-REFL-RECP-ANTC	
	PASS-ANTP-REFL-RECP	
	PASS-ANTP-REFL-ANTC	
	PASS-ANTP-RECP-ANTC	

Middle syncretism here refers to complex voice syncretism involving only three or four of the following voices: passive, reflexive, reciprocal, anticausative. As illustrated later in chapter 6, such syncretism is the most common kind of complex voice syncretism attested in the languages of the language sample in the present study. In turn, antipassive and causative voice syncretism here refers to complex voice

syncretism involving the antipassive and causative voices, respectively. These patterns are all listed below. Finally, a single pattern involving five voices has been attested in the sample; passive-antipassive-reflexive-reciprocal-anticausative syncretism. Due to its complexity, this pattern will be addressed separately in §5.4.

5.1 Middle syncretism

As shown in the beginning of this chapter, there are five patterns of complex middle syncretism and each pattern is attested in the language sample of the present study: reflexive-reciprocal-anticausative, passive-reflexive-reciprocal, passive-reflexive-anticausative, passive-reciprocal-anticausative, and passive-reflexive-reciprocal-anticausative syncretism. The latter pattern logically entails the other patterns as illustrated below. Passive-reflexive-reciprocal-anticausative syncretism is attested in three languages in the sample: the Permic language Udmurt, the Indo-European language Eastern Armenian (both EA), and the Uto-Aztecan language Huasteca Nahuatl (NA). In the former language, the pattern in question forms part of passive-antipassive-reflexive-reciprocal-anticausative syncretism and is therefore described in more detail later in §5.4. The syncretism in the other two languages is addressed here. For practical reasons the four other patterns are illustrated by a single language each; the Torricelli language Yeri (PN), the Nadahup language Hup (SA), the Tangkic language Kayardild (AU), and the Highland East Cushitic language Sidaama (AF). The full list of languages featuring these patterns is provided later in §5.5. The complex voice patterns covered by these languages in this section are listed below.

PASS-REFL-RECP-ANTC			
REFL-RECP-ANTC	PASS-REFL-RECP	PASS-REFL-ANTC	PASS-RECP-ANTC

The abovementioned passive-reflexive-reciprocal-anticausative syncretism is characterised by the suffix *-v* in Eastern Armenian (358-365) and by the prefix *mo-* in Huasteca Nahuatl (366-371). Note that Llanes et al. (2017) only provide one example each of the passive (366) and reflexive functions (367) of the Huasteca Nahuatl prefix. However, they describe the functions in question as if they were productive and also explicitly mention the “syncretism between reflexive, reciprocal, middle and passive

meanings" (id.: 81f.). Interestingly, Llanes et al. remark that "none anticausative use has been documented in the corpus for the prefix *mo*-" (sic; id.: 102), yet at least two of their examples qualify as such in the present study (i.e. exx. 370-371). Moreover, note that a directional marker *-to* is included in example (369); as argued by Llanes et al., "[a]lthough the base verb *wika* 'get along' could be analysed here as an intransitive verb since it is suffixed by a directional marker, this verb is still bivalent (the second argument would be an oblique argument introduced by the directional marker)" (id.: 91). In other words, when succeeded by the suffix *-to* the verb *wika-* entails two semantic participants: one who gets along, and another with which one gets along.

Eastern Armenian (Dum-Tragut 2009: 341, 661; 340; 177; 322, 610; 334; 178, 358; 343; 240, 360)

358.	PASS	*span-*	'to kill sb.'	↔	*span-**v**-*	'to be killed [by sb.]'
359.	PASS	*merž-*	'to reject sth.'	↔	*merž-**v**-*	'to be rejected [by sb.]'
360.	REFL	*sanr-*	'to comb sb.'	↔	*sanr-**v**-*	'to comb self'
361.	REFL	*paštpan-*	'to defend sb.'	↔	*paštpan-**v**-*	'to defend self
362.	RECP	*tesn-*	'to see sth.'	↔	*tesn-**v**-*	'to see e.o.'
363.	RECP	*hambur-*	'to kiss sb.'[15]	↔	*hambur-**v**-*	'to kiss e.o.'
364.	ANTC	*ǰard-*	'to break sth.'	↔	*ǰard-**v**-*	'to break'
365.	ANTC	*šarž-*	'to move sth.'	↔	*šarž-**v**-*	'to move'

Huasteca Nahuatl (Llanes et al. 2017: 90ff.)

366.	PASS	*tlali-*	'to put sth.'	↔	***mo**-tlali-*	'to be put [by sb.]'
367.	REFL	*ilpi-*	'to tie sth.'	↔	***mo**-ilpi-*	'to tie self'
368.	RECP	*ita-*	'to see sb.'	↔	***mo**-ita-*	'to see e.o.'
369.	RECP	*wika-to-*	'to get along with sb.'	↔	***mo**-wika-to-*	'to get along with e.o.'
370.	ANTC	*tlan-*	'to lift sth.'	↔	***mo**-tlan-*	'to stand up'
371.	ANTC	*kweso-*	'to sadden sb.'	↔	***mo**-kweso-*	'to get sad'

[15] The verb *hambur-* without *-v* is not found in Dum-Tragut's (2009) grammar; see instead, e.g., Sakayan (2007: 162).

Reflexive-reciprocal-anticausative syncretism is characterised by the "detransitivizing morpheme" *d-* in Yeri as exemplified below (372-377). Wilson (2017) explicitly recognises each of the three functions for the prefix, and remarks that the anticausative function "is particularly common with specific posture-arrange transitive verb roots, where its use creates several of the posture verbs" (id.: 369f.). This particular pattern is not just the most common pattern of middle syncretism attested in the present study, but the most common of all complex patterns as shown later in the next chapter.

Yeri (Wilson 2017: 451, 369; ibid., 692; 385, 369; ibid., 461; 370; ibid.)

372.	REFL	*altou*	'to cover sth.'	↔	***d-iekela***	'to cover self'
373.	REFL	*iesebɨl*	'to whip sb.'	↔	***d-iesebɨl***	'to whip self'
374.	RECP	*okɨrki*	'to help sb.'	↔	***d-okɨrki***	'to help e.o.'
375.	RECP	*iekewa*	'to be angry at sb.'	↔	***d-iekewa***	'to be angry at e.o.'
376.	ANTC	*awɨl*	'to hang sth.'	↔	***d-awɨl***	'to hang'
377.	ANTC	*awera*	'to make sth. lie flat'	↔	***d-awera***	'to lie flat'

In Hup the prefix *hup-* serves as voice marking in the passive (378-379), reflexive (380-381), and reciprocal voices (382-383). However, note that the reciprocal function of the prefix *hup-* is "marginal" (id.: 473) and always "interchangeable with the Interactional preform *ʔũh-*" (id.: 485f.; cf. *ʔũh-nɔʔ-* 'to give e.o. sth.'). Unlike the affixes *-v, mo-,* and *d-* in Eastern Armenian, Huasteca Nahuatl, and Yeri above, the Hup prefix *hup-* does not have a documented anticausative function. The diachrony of the said prefix in Hup is discussed in detail in §7.1.1 and §7.1.3.

Hup (Epps 2008: 479; 483; 479; 513; 346, 486; ibid., 574)

378.	PASS	*kɨt-*	'to cut sth.'	↔	***hup-kɨt-***	'to be cut [by sb.]'
379.	PASS	*mɑ́h-*	'to kill sb.'	↔	***hup-mɑ́h-***	'to be killed [by sb.]'
380.	REFL	*kɨt-*	'to cut sth.'	↔	***hup-kɨt-***	'to cut self'
381.	REFL	*cúʔ-*	'to grab sth.'	↔	***hup-cúʔ-***	'to grab self'
382.	RECP	*wɑ́d-*	'to eat sth.'	↔	***hup-wɑ́d-***	'to eat e.o.'
383.	RECP	*nɔʔ-*	'to give sb. sth.'	↔	***hup-nɔʔ-***	'to give e.o. sth.'

Next, in Kayardild passive-reflexive-anticausative syncretism is characterised by a so-called "middle suffix" with a range of allomorphs, two of which are relevant to the examples presented here: *-yii* found on stems ending in a long vowel which is shortened, and vowel lengthening (or *-V*) found on stems ending in a short vowel other than /u/ (Evans 1995: 276f.). The syncretism in question is illustrated in examples (384-389) below. Note that the verb *mardala-* in (386) also can have the meaning 'to paint sth.' (id.: 726). Unlike the affixes *-v*, *mo-*, *d-* and *hup-* in Eastern Armenian, Huasteca Nahuatl, Yeri, and Hup above, the suffix *-yii/-V* in Kayardild is not used as voice marking in the reciprocal voice; the suffix *-(n)thu/-nju* is used for this purpose, e.g. *bala-thu-* 'to hit e.o.' (id.: 487; cf. ex. 384). The diachrony of these suffixes in Kayardild is addressed in more detail in §7.2.1.

Kayardild (Evans 1995: 352, 427; 212, 532; 1f.; 79, 696; 460; ibid.)

384.	PASS	*bala-*	'to hit sth.'	↔	*bala-**a**-*	'to be hit [by sb.]'
385.	PASS	*raa-*	'to spear sth.'	↔	*ra-**yii**-*	'to be speared [by sb.]'
386.	REFL	*mardala-*	'to rub sth.'	↔	*mardala-**a**-*	'to rub self'
387.	REFL	*kala-*	'to cut sth.'	↔	*kala-**a**-*	'to cut self'
388.	ANTC	*dara-*	'to break sth.'	↔	*dara-**a**-*	'to break'
389.	ANTC	*mirndili-*	'to shut sth.'	↔	*mirndili-**i**-*	'to shut'

Finally, passive-reciprocal-anticausative syncretism in Sidaama is characterised by the suffix *-am* as seen in examples (390-395) below. Kawachi (2007: 333ff., 342ff.) explicitly recognises the passive and reciprocal functions of the suffix but does not mention any anticausative function. However, it is evident from several of the examples found in Kawachi's grammar (e.g. exx. 394-395; id.: 117) that such function is possible. In one case, Kawachi translates the verb *hiikk'-am-* accompanied by an emphatic reflexive pronoun '(the mirror) got broken *by itself*' highlighting that no other semantic participants are involved (italics here added for emphasis; id.: 186). The diachrony of the Sidaama suffix *-am* is discussed in §7.4.2, in which it is argued that suffix represents a rare instance of reciprocal voice marking developing a passive function.

Sidaama (Kawachi 2007: 220, 334; ibid., 225; 342; ibid.; 186, 334; 117, 334, 315, 545)

390.	PASS	*gan-*	'to hit sth.'	↔	*gan-**am**-*	'to be hit [by sb.]'
391.	PASS	*haišš-*	'to wash sth.'	↔	*haišš-**am**-*	'to be washed [by sb.]'
392.	RECP	*sunk'-*	'to kiss sb.'	↔	*sunk'-**am**-*	'to kiss e.o.'
393.	RECP	*t'aad-*	'to meet sb.'	↔	*t'aad-**am**-*	'to meet e.o.'
394.	ANTC	*hiikk'-*	'to break sth.'	↔	*hiikk'-**am**-*	'to break'
395.	ANTC	*t'iss-*	'to make sb. sick'	↔	*t'iss-**am**-*	'to get sick'

5.2 Antipassive syncretism

Complex voice syncretism involving the antipassive voice is attested in twelve languages in the language sample of the present study. Eleven of these languages are addressed in the following sections, while the Permic language Udmurt is discussed separately in §5.4 due to its extensive syncretism, as already noted in the preceding sections. Patterns of complex voice syncretism involving both the passive and antipassive voices are discussed in the next section, while patterns involving both the antipassive and reflexive voices are addressed in §5.2.2 and applicative-antipassive-reciprocal syncretism in §5.2.3.

5.2.1 Passive-antipassive-*

Complex voice syncretism involving both the passive and antipassive voices is only attested in two languages of the language sample in the present study; in the Turkic language Tatar (EA) and in the language isolate Mosetén (SA). The syncretism in question is particularly complex in Tatar which features passive-antipassive-reflexive-reciprocal syncretism, while a subset of this syncretism not involving the reflexive voice can be found in Mosetén. The specific patterns of complex voice syncretism covered by these languages and in this section are addressed.

PASS-ANTP-REFL-ANTC			
PASS-REFL-ANTC	PASS-ANTP-REFL	PASS-ANTP-ANTC	ANTP-REFL-ANTC

Passive-antipassive-reflexive-reciprocal syncretism in Tatar is characterised by the suffix *-n*, as illustrated in the examples below (396-403). Observe that the passive suffix *-n* appears to be an allomorph of another passive suffix *-l* which can be traced back to Common Turkic; in Tatar the allomorph *-n* appears on stems ending in /l/ (cf. ex. 396) or a consonant cluster involving the said phoneme (cf. ex. 397), while the allomorph *-l* appears elsewhere (Burbiel 2018: 473). The anticausative suffix *-n* appears to be similar in this respect. By contrast, the suffix *-n* in the reflexive and antipassive voices has no allomorph *-l* and is historically "connected to the possessive form *an* of the [third person] pronoun *ol*" (Salo 2013: 225).

Tatar (Burbiel 2018: 473, 484f.; Zinnatullina 1993: 173)

396.	PASS	*sayla-*	'to choose sth.'	↔	*sayla-**n**-*	'to be chosen [by sb.]'
397.	PASS	*alda-*	'to deceive sb.'	↔	*alda-**n**-*	'to be deceived [by sb.]'
398.	ANTP	*peşer-*	'to cook sth.'	↔	*peşer-**en**-*	'to cook [sth.]'
399.	ANTP	*teg-*	'to sew sth.'	↔	*teg-**en**-*	'to sew [sth.]'
400.	REFL	*tara-*	'to comb sb.'	↔	*tara-**n**-*	'to comb self'
401.	REFL	*sört-*	'to dry sth.'	↔	*sört-**en**-*	'to dry self'
402.	ANTC	*karañgıla-*	'to darken sth.'	↔	*karañgıla-**n**-*	'to darken'
403.	ANTC	*ütmäslä-*	'to dull sth.'	↔	*ütmäslä-**n**-*	'to become dull'

Next, Sakel (2004: 236) argues that Mosetén has three suffixes with "the same form" *-ki*; a "verbal stem marker" (ibid.), a "middle marker" (id.: 306ff.), and an "antipassive marker" (id.: 308ff.). Sakel's markers are here treated as a single syncretic suffix, *-ki*, which qualifies as voice marking in the passive (404-405), antipassive (406-407), and anticausative voices (408). Sakel also recognises an "associated motion marker" *-ki*, but there is a structural difference between this and the aforementioned *-ki* that "has to do with the vowel change before the suffix" (id.: 273). Moreover, as associated motion is not directly relevant to the present study, this function is ignored. The use of *-ki* as a verbal stem marker is not of primary interest here either, as it is "only used with bound verbal roots" to form verbal stems in this function (id.: 218, 236). However, from a language-specific perspective, it may be worth noting that verbal stems in which the said suffix is incorporated are "intransitive and can have stative or dynamic meanings" (ibid.); qualities often associated with

passives, antipassives, and/or anticausative in the literature. Furthermore, note that Sakel only provides one example of the anticausative use of the suffix *-ki* (i.e. ex. 408). However, as she explicitly states that the said suffix can express "spontaneous events" (id.: 307) and notes that such structures "are sometimes called 'anticausative'" (id.: 479), it is assumed that the function in question is productive with other verbs as well. Fully glossed examples of the passive-antipassive syncretism have already been provided in §4.2.4 (vid. exx. 187-192 p. 120).

Mosetén (Sakel 2004: 306ff.)[16]

404.	PASS	*jeb-i-*	'to eat sth.'	↔	*jeb-a-**ki**-*	'to be eaten [by sb.]'
405.	PASS	*raem'-yi-*	'to bite sb.'	↔	*raem'-ya-**ki**-*	'to be bitten [by sb.]'
406.	ANTP	*karij-tyi-*	'to work on sth.'	↔	*karij-tya-**ki**-*	'to work on [sth.]'
407.	ANTP	*san-i-*	'to write sth.'	↔	*san-a-**ki**-*	'to write [sth.]'
408.	ANTC	*jofor'-yi-*	'to open sth.'	↔	*jofor'-ya-**ki**-*	'to open'

Another language in the sample, the Central Salish language Musqueam (NA), features syncretism characterised by the suffix *-m* which is superficially similar to that of Mosetén illustrated above. The suffix in question has both passive and anticausative functions; however, as discussed in §2.2.2, a proper antipassive function is not acknowledged for the said suffix in the present study, but an "antipassive-like" function has been recognised ad hoc. Although the syncretism in question does not qualify as proper passive-antipassive-anticausative syncretism, it is here illustrated for the sake of comparison (409-414). In the passive voice the suffix in question is added onto the verbal stem, but in the antipassive-like and anticausative voices the suffix is in variation with a verbal marking in the contrasting voices to which they are defined (i.e. *-t*). Observe that the verbal forms *hí·l-* and *híl-* represent the same stem in (413); the difference in vowel length is morphophonologically conditioned (Suttles 2004: 147f.).

[16] In Mosetén stem-final /i/ becomes /a/ when followed by *-ki* and certain other suffixes (Sakel 2004: 47, 308) and /e/ when followed by "transitive cross-reference forms which do not trigger vowel harmony" (id.: 45).

Musqueam (Suttles 2004: 35, 43, 51, 447f., 230f.)

409.	PASS	*c̓éw-ɘt*	'to help sb.'	↔	*c̓éw-ɘt-**əm***	'to be helped [by sb.]'
410.	PASS	*k̓ʷɬé-t*	'to tip sth. over'	↔	*k̓ʷɬé-t-**əm***	'to be tipped over [by sb.]'
411.	"ANTP"	*kʷə́n-ət*	'to get/take sth.'	↔	*kʷə́n-**əm***	'to get [sth.]'
412.	"ANTP"	*k̓ʷχé-t*	'to count sth.'	↔	*k̓ʷχé-**m***	'to count [sth.]'
413.	ANTC	*hí·l-t*	'to roll sth.'	↔	*híl-**əm***	'to roll'
414.	ANTC	*pk̓ʷə́-t*	'to scatter sth. around'	↔	*pk̓ʷə́-**m***	'to splash/billow out'

5.2.2 Antipassive-reflexive-*

Complex voice syncretism involving the antipassive and reflexive voices is particularly noteworthy in the Oto-Manguean language Acazulco Otomí, the Southern Iroquoian language Cherokee (both NA), the Tacanan language Ese Ejja (SA), and the Northern Chukotko-Kamchatkan language Chukchi (EA) which all feature antipassive-reflexive-reciprocal-anticausative syncretism. Similar syncretism has been observed for other languages sporadically in the literature (vid., e.g., Letuchiy 2007: 780ff. on the Northwest Caucasian language Adyghe). A subset of the said syncretism is attested in the Katukinan language Katukina-Kanamari (SA), the Mangarrayi-Maran language Mangarrayi (AU), and the language isolate Oksapmin (PN), in the former two languages more specifically antipassive-reflexive reciprocal syncretism and in the latter language antipassive-reflexive-anticausative syncretism. Both the aforementioned patterns are attested in the Gunwinyguan language Nunggubuyu (AU) in which the patterns are characterised by two different suffixes. These eight languages are their syncretism are all discussed below. The patterns of complex voice syncretism covered by these languages are listed below. Evidently, the syncretism attested in Acazulco Otomí, Cherokee, Ese Ejja, and Chukchi logically entails reflexive-reciprocal-anticausative syncretism which has also been addressed in §5.1 in relation to middle syncretism.

ANTP-REFL-RECP-ANTC			
ANTP-REFL-RECP	ANTP-REFL-ANTC	ANTP-RECP-ANTC	REFL-RECP-ANTC

In Acazulco Otomí antipassive-reflexive-reciprocal-anticausative syncretism is characterised by the nasal prefix *n-* with the allomorphs *m-* (due to assimilation), *nt-*

(before /x/), and *ntx-* (before a glottal fricative or stop). The syncretism and allomorphs of this suffix are illustrated in examples (415-422) below. Hernández-Green (2015: 512) explicitly notes the extensive syncretism of the aforementioned suffix, and further remarks that the suffix is productive (id.: 525) but does not otherwise discuss the suffix nor the syncretism further. Likewise, in Ese Ejja the circumfix *xa-…-ki* serves as voice marking in the antipassive (423-424), reflexive (425-426), reciprocal (427-428), and anticausative voices (429-430). As already noted in §4.2.4, Vuillermet (2012: 519) also suggests that the circumfix can have a "passive-like" function which does not qualify as passive in the present study.

Acazulco Otomí (Hernández-Green 2015: 294, 513)

415.	ANTP	*pèni*	'to wash sth.'	↔	***m*-*pèni***	'to wash [sth.]'
416.	ANTP	*tə̀i*	'to buy sth.	↔	***n*-*tə̀i***	'to buy [sth.]'
417.	REFL	*hò*	'to hit sth.'	↔	***ntx*-*hò***	'to hit self'
418.	REFL	*hə́'t'*	'to see sth.'		***ntx*-*hə́'t'***	'to see self'
419.	RECP	*tsṵ́i*	'to scold sb.'	↔	***n*-*tsṵ́i***	'to scold e.o.'
420.	RECP	*hò*	'to hit sth.'	↔	***ntx*-*hò***	'to hit e.o.'
421.	ANTC	*kó'mbi*	'to cover sth.'	↔	***n*-*kó'mbi***	'to cover up'
422.	ANTC	*phə̀gi*	'to spill sth.'	↔	***m*-*phə̀gi***	'to spill'

Ese Ejja (Vuillermet 2012: 520ff.)

423.	ANTP	*ba-*	'to see sth.'	↔	***xa*-*ba*-*ki*-**	'to see [sth.]'
424.	ANTP	*iña-*	'to grab sth.'	↔	***xa*-*iña*-*ki*-**	'to grab [sth.]'
425.	REFL	*jabe-*	'to comb sb.'	↔	***xa*-*jabe*-*ki*-**	'to comb self'
426.	REFL	*paa-*	'to cover sth. up'	↔	***xa*-*paa*-*ki*-**	'to cover self up'
427.	RECP	*nabatoxo-*	'to kiss sb.'	↔	***xa*-*nabatoxo*-*ki*-**	'to kiss e.o.'
428.	RECP	*kwya-*	'to hit sth.'	↔	***xa*-*kwya*-*ki*-**	'to hit e.o.'
429.	ANTC	*isa-*	'to tear sth.'	↔	***xa*-*isa*-*ki*-**	'to tear'
430.	ANTC	*saja-*	'to break sth.'	↔	***xa*-*saja*-*ki*-**	'to break'

Antipassive-reflexive-reciprocal-anticausative syncretism in Chukchi is characterised by the suffix *-tku/-tko* (depending on vowel harmony) which Nedjalkov (2006: 221) tellingly has called "the most polysemous suffix" in the language. The syncretism in question is illustrated in the examples below (431-437); note that the

schwa in (435) is simply epenthetic. Only one example of the suffix *-tku/-tko* serving as voice marking in the anticausative voice is provided here. Nevertheless, both Kurebito (2012: 186) and Nedjalkov (2006: 222) explicitly mention an anticausative use of the suffix in question; indeed, Nedjalkov considers the anticausative function one of the default readings of the said suffix (ibid.). Thus, although only Nedjalkov provides an anticausative example of the suffix *-tku/-tko* (i.e. ex. 437), the said function is assumed to be productive with other verbs as well.

Chukchi (Nedjalkov 2006: 220ff.; Kurebito 2012: 186)

431.	ANTP	*juu-*	'to bite sb.'	↔	*juu-**tku**-*	'to bite [sb.]'
432.	ANTP	*penrə-*	'to fall on sth.'	↔	*penrə-**tko**-*	'to fall on [sth.]'
433.	REFL	*lpiw-*	'to cut sth.'	↔	*lpiw-**tku**-*	'to cut self'
434.	REFL	*ittil-*	'to hit sth.'	↔	*ittil-**tku**-*	'to hit self'
435.	RECP	*ukwet-*	'to kiss sb.'	↔	*ukwet-ə-**tku**-*	'to kissed e.o.'
436.	RECP	*lʔu-*	'to see sth.'	↔	*lʔu-**tku**-*	'to see e.o.'
437.	ANTC	*ejpə-*	'to close sth.'	↔	*ejpə-**tku**-*	'to close'

While the antipassive-reflexive-reciprocal-anticausative syncretism in Acazulco Otomí, Ese Ejja, and Chukchi described above is based on type 1a syncretism alone, the syncretism in question is based on both type 1a and type 1b syncretism in Cherokee. As described in §3.2.2, Cherokee has what Montgomery-Anderson (2008) calls a "reflexive prefix" *at-/ataa(t)-* (id.: 343) serving as voice marking in the antipassive (438-439), reflexive (440-441), and reciprocal voices (442-443); and a "middle voice prefix" *at-/ataa-/ali-* (id.: 347) serving as voice marking in the anticausative voice (444-445). The former prefix has the allomorphs *at-* (before the vowel /a/), *ataat-* (before all other vowels), and *ataa-* (before all consonants); while the latter prefix has the allomorphs *at-* (before all vowels), as *ali-* (before the consonant /h/ and seemingly also before /s/ and /n/), and as *ataa-* (before all other consonants). Evidently, the allomorphs of the two prefixes overlap under certain phonological conditions, namely before the vowel /a/ and before consonants other than /h/, /s/, and /n/. Furthermore, observe that verbs in Cherokee have five stems that "express different grammatical information about the tense, aspect, and mood" (Montgomery-Anderson 2008: 252); these different stems are "present continuous,"

"incompletive," "immediate," "completive," and "deverbal noun" (for instance used with auxiliary verbs). For example, the five stems of the verb 'to help sb.' are *-steelíha*, *-steeliísk*, *-steéla*, *-steelvvh*, and *-stehlt* (id.: 224f.; cf. exx. 438, 442). This phenomenon explains the differences between the stems in examples (438) and (445); the stem *-xxjakahl* is completive, while the stem *-jakalvyska* is present continuous.

Cherokee (Montgomery-Anderson 2008: 366; 371; 201, 345; 371; 374; 249, 275; 374; 373, 382)[17]

438.	ANTP	*-steelvvh*	'to help sb.'	↔	***-ataa-****stehlt*	'to help [sb.]'
439.	ANTP	*-olihka*	'to recognise sb.'	↔	***-ataat-****olihka*	'to recognise [sb.]'
440.	REFL	*-kohwthíha*	'to see sth.'	↔	***-ataa-****kohwthíha*	'to see self'
441.	REFL	*-olihka*	'to recognise sb.'	↔	***-ataat-****olihka*	'to recognise self'
442.	RECP	*-steelvvh*	'to help sb.'	↔	***-ataa-****steelvvh*	'to help e.o.'
443.	RECP	*-kooh*	'to see sth.'	↔	***-ataa-****kooh*	'to see e.o.'
444.	ANTC	*-x́xhliisíha*	'to gather sth.'	↔	***-ataa-****x́xhliisíha*	'to gather'
445.	ANTC	*-xxjakahl*	'to rip sth.'	↔	***-ataa-****jakalvyska*	'to rip'

Antipassive-reflexive-reciprocal syncretism in Katukina-Kanamari is characterised by an "intransitiviser" (*intransitivizador*; dos Anjos 2011: 121ff.) with the allomorphs *-i* (after /k/), *-k* (after the vowel /u/), and *-hik* (after /ŋ/ and all vowels but /u/; ibid.) as illustrated in examples (446-451) below. Considering the notable phonological differences between these allomorphs, for comparative purposes the examples should ideally have featured the same allomorphs. Unfortunately, dos Anjos does not provide any clear antipassive examples involving the allomorphs *-k* or *-i* nor any clear reflexive and reciprocal examples involving the allomorph *-hik*. The verb *kɯni-hik* 'to bite self' (dos Anjos 2011: 122) does represent a reflexive voice if it is assumed that a verb *ʔkɯni* with the meaning 'to bite sth.' exists in the language (the verb in question is not explicitly given in dos Anjos' grammar). Nevertheless, since

[17] The digraph ⟨xx⟩ "indicates that the vowel of the prefix that attaches to the stem is lengthened" (Montgomery-Anderson 2008: xii), while the digraph ⟨x́x⟩ indicates that the aforementioned prefix "has a high tone" (ibid.). Furthermore, the word-initial grapheme ⟨h⟩ in example (444) does not represent the phoneme /h/ but forms part of the digraphs ⟨hl⟩ representing the phoneme /ɬ/.

the three voices are described as featuring the same voice marking with the same allomorphs, it is assumed that each allomorph can serve productively as voice marking in the antipassive, reflexive, and reciprocal voices in the language.

Katukina-Kanamari (dos Anjos 2011: 342f.; ibid.; 123, 336; 121, 138; 346; 347, 381)

446.	ANTP	*tyaman*	'to cut sth.'	↔	*tyaman-**hik***	'to cut [sth.]'
447.	ANTP	*topohan*	'to blow sth.'	↔	*topohan-**hik***	'to blow [sth.]'
448.	REFL	*uu*	'to like sth.'[18]	↔	*uu-**k***	'to like self'
449.	REFL	*hi:k*	'to see sth.'	↔	*hi:k-**i***	'to see self'
450.	RECP	*pu*	'to eat sth.'	↔	*pu-**k***	'to eat e.o.'
451.	RECP	*tohi:k*	'to look at sth.'	↔	*tohi:k-**i***	'to look at e.o.'

Next, antipassive-reciprocal-anticausative syncretism in Oksapmin is characterised by the prefix *t-* (452-456). Note that "[c]omplex predicates consisting of a coverb plus a light verb are frequently used in Oksapmin" (Loughnane 2009: 310) and in such complex predicates the voice marking is found on the light verb (vid. exx. 453, 454). The choice between the prefixes *de-* and *ml-* "depends on the particular tense used," while the use of the prefix *x-* "is triggered by the presence of certain prefixes," including *t-* (id.: 323). Observe that Loughnane (2009) provides one example of a reflexive voice relation (i.e. ex. 454) yet treats reflexivity as one of the three main functions of the prefix *t-* (id.: 238ff.); thus, the reflexive function of the prefix is here assumed to be productive.

Oksapmin (Loughnane 2009: 239f.; ibid.; 241; ibid., 301; 369)

452.	ANTP	*xtol*	'to look at sth.'	↔	***t-**xtol*	'to look at [sth.]'
453.	ANTP	*aŋ de-/ml-*	'to look for sth.'	↔	*aŋ **t-**x-*	'to look for [sth.]'
454.	REFL	*gəx de-/ml-*	'to wash sth.'	↔	*gəx **t-**x*	'to wash self'
455.	ANTC	*dpəlkwe*	'to turn sth. over'	↔	***t-**dpəlkwe*	'to turn over'
456.	ANTC	*dəlpə*	'to beget sth.' (i.e. 'to cause sth. to begin')	↔	***t-**dəlpə*	'to begin'

[18] The stem of the verb 'to like/want' is variously given as *uu*, *uɯ* and *wu* by dos Anjos (2011).

Finally, as mentioned in the beginning of this section, Nunggubuyu is notable for featuring both antipassive-reflexive-reciprocal and antipassive-reflexive-anticausative syncretism, characterised by the suffixes *-nʸji* and *-i*, respectively (the diachrony of these suffixes is addressed in §7.2.1). The former syncretism can also be found in another Australian language, Mangarrayi (Merlan 1989: 135f., 154f.). The former pattern of syncretism is illustrated in (457-460), while the latter pattern is illustrated in (461-466). Observe that the "the root-final vowel may change to /i/" before the suffix *-nʸji* "depending on verb class" (id.: 392; for more information, see id.: 101f.), and the combination of a root-final vowel and the suffix *-i* becomes /i(ː)/ (id.: 98ff.). Note also that *-ra* (*-ri*) in example (458) and *-nᵍa* (*-nᵍi*) in example (459) are simply verb class suffixes (id.: 51, 99, 485, 500). Furthermore, it is worth noting that the antipassive use of the suffix *-i* in Nunggubuyu is only "limited to a few verbs" (id.: 390). Finally, observe that the verb *lharma-nʸji-* in example (457) also can also have the meaning 'to chase e.o.,' but the verb *wargu-ri-nʸji-* in example (458) cannot have the meaning 'to carry e.o.' on shoulder' as this sense is "semantically awkward since carrying on shoulder is intrinsically nonreciprocal" (id.: 392).

Nunggubuyu (Heath 1984: 392)

457.	ANTP	*lharma-*	'to chase sth.'	↔	*lharma-**nʸji**-*	'to chase [sth.]'
458.	ANTP	*wargu-ra-*	'to carry sth. on shoulder'	↔	*wargu-ri-**nʸji**-*	'to carry [sth.] on shoulder'
459.	REFL/ RECP	*wa-nᵍa-*	'to bite sth.'	↔	*wa-nᵍi-**nʸji**-*	a. 'to bite self' b. 'to bite e.o.'
460.	REFL/ RECP	*ṟa-*	'to spear sth.'	↔	*ṟi-**nʸji**-*	a. 'to spear self' b. 'to spear e.o.'

Nunggubuyu (id.: 390, 394)

461.	ANTP	*yaḻgiwa-*	'to pass sth.'	↔	*yaḻgiw-**i**-*	'to pass [sth.]'
462.	ANTP	*wuṟama-*	'to go around sth.'	↔	*wuṟam-**i**-*	'to go around [sth.]'
463.	REFL	*na-*	'to see sth.'	↔	*n-**i**-*	'to see self'
464.	REFL	*lhamalhama-*	'to praise sth.'	↔	*lhamalham-**i**-*	'to praise self'
465.	ANTC	*ḻaḻaga-*	'to raise sth.'	↔	*ḻaḻag-**i**-*	'to get up'
466.	ANTC	*nᵍaṉḏa-*	'to throw sth. into water'	↔	*nᵍaṉḏ-**i**-*	'to sink in water'

5.2.3 Applicative-antipassive-reciprocal

Applicative-antipassive-reciprocal syncretism has hitherto only been attested in the Eskimo language Central Alaskan Yupik (NA) in which the syncretism is characterised by the suffix *-ut* (with the underlying form |*-uc*| according to Miyaoka 2012: 830ff.), as illustrated below (467-471). Note that the final phoneme *-r* /ʁ/ in examples (468) and (471) is omitted before the suffix *-ut* as a result of "intervocalic velar deletion" (id.: 211f.); Miyaoka calls the phoneme in question "back velar" rather than uvular (id.: 46). As argued later in §7.2.4, the antipassive function of the suffix *-ut* in appears to have evolved diachronically from the applicative and reciprocal functions.

Central Alaskan Yupik (Miyaoka 2012: 844, 953; ibid.; 915, 918; 656, 929; ibid., 1091; Mithun 2000: 96)

467.	APPL	*ner-*	'to eat sth.'	↔	*ner-**ut**-*	'to eat sth. with sb'
468.	APPL	*kenir-*	'to cook sth.'	↔	*keni-**ut**-*	'to cook sth. for sb.'
469.	ANTP	*nalaq-*	'to find sth.'	↔	*nalaq-**ut**-*	'to find [sth.]'
470.	RECP	*tangrr-*	'to see sth.'	↔	*tangrr-**ut**-*	'to see e.o.'
471.	ANTP/ RECP	*ikayur-*	'to help sb.'	↔	*ikayu-**ut**-*	a. 'to help [sb.]' b. 'to help e.o.'

5.3 Causative syncretism

Complex voice syncretism involving the causative voice is attested in six languages in the language sample of the present study. The syncretism in question is characterised exclusively by full resemblance in voice marking in the North Omotic language Wolaytta (AF) as well as in the language isolates Korean (EA) and Kutenai (NA); while it involves some partial resemblance in marking in the Arawakan language Yine, the Panoan language Chácobo (both SA), and in the Northern Chukotko-Kamchatkan language Chukchi (EA). As described in the next section, Wolaytta, Yine, and Korean feature complex voice syncretism involving both the causative and passive voices. In turn, causative-reflexive-anticausative syncretism in Chukchi is addressed in §5.3.2, and causative-applicative-passive syncretism in Kutenai and Chácobo is discussed in §5.3.3.

5.3.1 Causative-passive-*

As noted in the previous section, three languages in the language sample of the present study feature complex voice marking characterising both the causative and the passive voices. This syncretism is particularly extensive in the North Omotic language Wolaytta (AF) which feature causative-passive-reflexive-reciprocal syncretism. By contrast, the language isolate Korean (EA) and the Arawakan language Yine (PN) feature subsets of the aforementioned syncretism; causative-passive-anticausative in the former language and causative-passive-reciprocal syncretism in the latter language. These languages and their syncretism are addressed in more detail below. The patterns of complex voice syncretism covered by these languages are listed below. Evidently, the syncretism attested in Wolaytta logically entails pass-reflexive-reciprocal syncretism which has also been addressed in §5.1 in relation to middle syncretism.

CAUS-PASS-REFL-RECP			
CAUS-PASS-REFL	CAUS-PASS-RECP	CAUS-REFL-RECP	PASS-REFL-RECP

As already described in §3.2.2, the suffix *-ett* in Wolaytta can serve as voice marking in both the causative and passive voices. In the former voice the said suffix never has a high pitch (472-473), unlike in the latter voice (474-475). The pitch of the suffix *-ett* in the passive voice is dependent on the "tonal prominence" (Wakasa 2008: 84ff.) of the stem to which it is attached: the allomorph *-ett* is found on stems with tonal prominence, while the allomorph *-étt* is found on stems without tonal prominence (id.: 1013). The voice marking found in the passive voice can also be found in the reflexive (476-477) and reciprocal voices (478-479). Note that "[w]hen a base stem ends in a geminated geminated consonant, it is usually reduced to a single consonant" when the passive-reflexive-reciprocal suffix is attached (id.: 1014; cf. ex. 476); the same is true for the causative suffix (cf. ex. 472). Wakasa considers the "most salient" use of the passive-reflexive-reciprocal suffix to be passive (ibid.), but the reciprocal use appears to be common as well (id.: 1022ff.). By contrast, the reflexive use is more marginal although "there are indeed examples" in which the suffix is used to "express reflexive situations" (id.: 1028; cf. exx. 477, 478). It is unclear how

productive the causative suffix is; Wakasa simply lists and exemplifies it alongside other means of marking causativisation in the language (id.: 1005ff.).

Wolaytta (Wakasa 2008: 1008; ibid.; 1014; 1013; 1029; ibid.; 734, 1022; 988)

472.	CAUS	*Ceegg-*	'to become old'	↔	*Ceeg-**ett**-*	'to make sth. narrow'
473.	CAUS	*bal-*	'to err'	↔	*bal-**ett**-*	'to cause sb. to err' ('to deceive sb.')
474.	PASS	*dóór-*	'to pile sth. up'	↔	*dóór-**ett**-*	'to be piled up [by sb.]'
475.	PASS	*dog-*	'to forget sth.'	↔	*dog-**étt**-*	'to be forgotten [by sb.]'
476.	REFL	*meeCC-*	'to wash sth.'	↔	*meeC-**ett**-*	'to wash self'
477.	REFL	*bonc-*	'to respect sb.'	↔	*bonc-**étt**-*	'to respect self'
478.	RECP	*gílil-*	'to tickle sb.'	↔	*gílil-**ett**-*	'to tickle e.o.'
479.	RECP	*zor-*	'to advise sb.'	↔	*zor-**étt**-*	'to advise e.o.' ('to consult e.o.')

Causative-passive-anticausative syncretism in Korean is characterised by the suffix *-(C)i* as seen in the examples below (480-485). This syncretism is particularly interesting from a diachronic perspective, as the passive and anticausative functions both seem to have developed from the causative function, as further discussed later in §7.5.1 and §7.5.2.

Korean (H.-M. Sohn 1999: 369, 375; Baek 1997: 82f.)

480.	CAUS	*cwul-*	'to decrease'	↔	*cwul-**li**-*	'to reduce sth.'
481.	CAUS	*nwup-*	'to lie down'	↔	*nwup-**hi**-*	'to lay sth.'
482.	PASS	*kkul-*	'to pull sth.'	↔	*kkul-**li**-*	'to be pulled [by sb.]'
483.	PASS	*mek-*	'to eat sth.'	↔	*mek-**hi**-*	'to be eaten [by sb.]'
484.	ANTC	*yel-*	'to open sth.'	↔	*yel-**li**-*	'to open'
485.	ANTC	*mak-*	'to block sth.'	↔	*mak-**hi**-*	'to block'

Finally, as noted in the previous section, complex voice syncretism in Yine is characterised by both type 1 and type 2 syncretism. In this language the suffix *-ka* serves as voice marking in the passive voice (489-490) and bears partial resemblance to the suffix *-kaka* serving as voice marking in the causative (486-487) and reciprocal voices (488). Hanson (2010) only provides a single example of a reciprocal voice relation (i.e. ex. 488), yet her discussion of the reciprocal function of the suffix *-kaka*

clearly suggests that it is productive (id.: 268f.). Diachronically, the former suffix has been linked to both passivity and causativity (Wise 1990), and the latter suffix to reciprocity, comitativity, and causativity (§7.2.5).

Yine (Hanson 2010: 271; ibid.; 191, 269; 265; 211)

486.	CAUS	*-halna*	'to fly'	↔	*-halna-**kaka***	'to make sth. fly'
487.	CAUS	*-himata*	'to know'	↔	*-himata-**kaka***	'to make sb. know'
488.	RECP	*-hiylaka*	'to hit sth.'	↔	*-hiylaka-**kaka***	'to hit e.o.'
489.	PASS	*-hiylata*	'to kill sb.'	↔	*-hiylata-**ka***	'to be killed [by sb.]'
490.	PASS	*-hiçha*	'to search for sth.'	↔	*-hiçha-**ka***	'to be searched for [by sb.]'

5.3.2 Causative-reflexive-anticausative

Causative-reflexive-anticausative syncretism has hitherto only been attested in the Northern Chukotko-Kamchatkan language Chukchi, and is characterised by both full and partial resemblance in voice marking. In the said language the suffix *-et/-at* serves as voice marking in the reflexive (493-494) and anticausative voices (495-496), as well as in the causative voice accompanied by the prefix *r-/n-* forming a circumfix (491-492). Note that the schwa in (492) is simply epenthetic, while the allomorphs of the suffix *-et/-at* are conditioned by vowel harmony, and the allomorphs of the prefix *r-/n-* by its position in the verb (*r-* appears word-initially and *n-* elsewhere; Dunn 1999: 51). However, observe that the anticausative function of the suffix is marginal; Dunn (id.: 21) argues that it is "not systematic or productive" and Kurebito (2012: 187) states that only three "anticausative verbs formed by adding the suffix."

Chukchi (Dunn 1999: 256; Stenin 2017: 6; Kurebito 2012: 186f.)

491.	CAUS	*lw*	'to burn'	↔	***r-/n-**ə-lw-**et***	'to burn sth.'
492.	CAUS	*went*	'to open'	↔	***r-/n-**went-**et***	'to open sth.'
493.	REFL	*qetw*	'to stab sb.'	↔	*qetw-**et***	'to stab self'
494.	REFL	*ejup*	'to prick sb.'	↔	*ejup-**et***	'to prick self'
495.	ANTC	*ejp*	'to close sth.'	↔	*ejp-**et***	'to close'
496.	ANTC	*tejwŋ*	'to divide sth.'	↔	*tejwŋ-**et***	'to divide'

5.3.3 Causative-applicative-passive

Causative-applicative-passive syncretism entailing full resemblance in voice marking is attested in the language isolate Kutenai (NA). Morgan (1991: 300) argues that the so-called "Transitive-Ditransitive Suffix" *-(i)ɬ* in this language has two functions; a "simple transitive function" and a "ditransitive function," qualifying as causative (497) and applicative (498-499) in the present study, respectively. Additionally, Morgan argues that the language has the "Passive Suffix" *-(i)ɬ* (500-501). Although he makes "a clear distinction" in writing between the causative-applicative suffix *-(i)ɬ* and the passive suffix *-(i)ɬ*, he admits that they have "the same form" and "it would appear that these two suffixes are related" (id.: 301). Note that Morgan only exemplifies the causative function of the suffix *-(i)ɬ* with a single voice relation (i.e. ex. 497), yet his description thereof suggests that the causative function is indeed productive.

Kutenai (Morgan 1991: 300; 291f.; 300; 363, 377; 305f.)

497.	CAUS	*ʔup*	'to die'	↔	*ʔup-**iɬ***	'to kill sb.'
498.	APPL	*hałuqławut*	'to fish'	↔	*hałuqławut-**iɬ***	'to fish for sth.'
499.	APPL	*qa-kiʔ*	'to say sth.'	↔	*qa-ki-**ɬ***	'to say/tell sb. sth.'
500.	PASS	*ʔiktuquʔ*	'to wash sth.'	↔	*ʔiktuquʔ-**ɬ***	'to be washed [by sb.]'
501.	PASS	*piȼ-quwaʔt-iɬ*	'to shear sth.'	↔	*piȼ-quwaʔt-iɬ-**iɬ***	'to get sheared [by sb.]'

Causative-applicative-passive syncretism in the Panoan language Chácobo (SA) differs from that illustrated for Kutenai above in being based on both full and partial resemblance in voice marking. More specifically, in Chácobo the suffix *-ʔak* serves as voice marking in both the causative (502-503) and applicative voices (504-505), while the suffix *-ʔaká* serves as voice marking in the passive voice (506-507). Tallman (2018: 644) argues that the passive suffix likely is historically composed of the causative-applicative suffix *-ʔak* and the plural clitic *=kán*, noting that /k/ in coda position is "always deleted" while /n/ in coda position is "deleted in most morphosyntactic contexts" (ibid.). The suffix *-ʔak* itself ultimately "seems to be related diachronically to the transitive verb root *ak* 'make, do, hit'" (id.: 652).

Chácobo (Tallman 2018: 656f.; 651; ibid.; 652f.; 620, 636; 629, 675)

502.	CAUS	*yaho*	'to shake'	↔	*yaho-**ʔak***	'to shake sth.'
503.	CAUS	*baha*	'to be bright'	↔	*baha-**ʔak***	'to brighten sth.'
504.	APPL	*koʃo*	'to spit'	↔	*koʃo-**ʔak***	'to spit on sb.'
505.	APPL	*ʂoo*	'to breathe'	↔	*ʂoo-**ʔak***	'to breathe on sb.'
506.	PASS	*rota*	'to hang sth.'	↔	*rota-**ʔaká***	'to be hung [by sb.]'
507.	PASS	*pi*	'to eat sth.'	↔	*pi-**ʔaká***	'to be eaten [by sb.]'

5.4 Multiplex syncretism

The most complex pattern of voice syncretism attested in the language sample of the present study is passive-antipassive-reflexive-reciprocal-anticausative syncretism which essentially encompasses all patterns of middle and antipassive syncretism. Due to the complexity of such syncretism, patterns of complex voice syncretism involving five or more voices will henceforth be called MULTIPLEX. The only language in the sample featuring the abovementioned passive-antipassive-reflexive-reciprocal-anticausative multiplex syncretism is the Permic language Udmurt (EA), which has already been mentioned sporadically in the preceding sections. The syncretism in this language is characterised by the suffix *-śk* as seen in the examples below (508-517).

Udmurt (Perevoščikov 1962: 226f.; Kirillova 2008: 573; Winkler: 122; Tánczos 2014: 306f., 310ff.)

508.	PASS	*kvaśt-*	'to dry sth.'	↔	*kvaśt-**iśk-***	'to be dried [by sb.]'
509.	PASS	*uśt-*	'to open sth.'	↔	*uśt-**ïśk-***	'to be opened [by sb.]'
510.	ANTP	*kopa-*	'to hoe sth.'	↔	*kopa-**śk-***	'to hoe [sth.]'
511.	ANTP	*vur-*	'to sew sth.'	↔	*vur-**iśk-***	'to sew [sth.]'
512.	REFL	*korma-*	'to scratch sth.'	↔	*korma-**śk-***	'to scratch self'
513.	REFL	*syna-*	'to comb sb.'	↔	*syna-**śk-***	'to comb self'
514.	RECP	*ćupa-*	'to kiss sb.'	↔	*ćupa-**śk-***	'to kiss e.o.'
515.	RECP	*dźygyrja-*	'to embrace sb.'	↔	*dźygyrja-**śk-***	'to embrace e.o.'
516.	ANTC	*pytsa-*	'to close sth.'	↔	*pytsa-**śk-***	'to close'
517.	ANTC	*uśt-*	'to open sth.'	↔	*uśt-**ïśk-***	'to open'

The closely related language Komi also features the said same syncretism as Udmurt, characterised by the cognate suffix *-ś* (518-527). As noted by Bartens (2000: 284), the antipassive function of the suffixes in Udmurt and Komi is often associated with some degree of habituality, which is not surprising from a cross-linguistic perspective (e.g. Polinsky 2017). Furthermore, the suffixes can in some contexts have a resultative-like function (e.g. Komi *kyvyz-* 'to hear/listen' ↔ *kyvyz-yś-* 'to have heard enough;' id.: 285), and in Udmurt the suffix *-śk* even serves as a present tense marker (e.g. Udmurt *myn-iśk-omy* 'we go;' cf. Komi *mun-am* 'we go;' id.: 179ff.). The suffixes have been reconstructed **-śk* for Proto-Permic, but the exact development of the many functions of the suffix remains a topic of debate (for an overview of different theories and hypotheses, see Kozmács 2003: 168ff.).

Komi (Bartens 2000: 284f.)

518.	PASS	*k'ośav-*	'to tear down sth.'	↔	*k'ośav-**ś-***	'to be teared down [by sb.]'
519.	PASS	*vöć-*	'to make/build sth.'	↔	*vöć-**ś-***	'to be made/built [by sb.]'
520.	ANTP	*kyj-*	'to hunt (for) sth.'	↔	*kyj-**ś-***	'to hunt [sth.]'
521.	ANTP	*dor-*	'to forge sth.'	↔	*dor-**ś-***	'to forge [sth.]' ('work as a smith')
522.	REFL	*vi-*	'to kill sb.'	↔	*vi-**ś-***	'to kill self'
523.	REFL	*lyj-*	'to shoot sth.'	↔	*lyj-**ś-***	'to shoot self'
524.	RECP	*ad'ʒ-*	'to see sth.'	↔	*ad'ʒ-**yś-***	'to see e.o.'
525.	RECP	*jir-*	'to bite/gnaw sth.'	↔	*jir-**ś-***	'to bite e.o.'
526.	ANTC	*šond-*	'to warm sth.'	↔	*šond-**yś-***	'to (become) warm'
527.	ANTC	*juk-*	'to divide/split sth.'	↔	*juk-**ś-***	'to divide/split'

It has hitherto only been possible to find one other language featuring passive-antipassive-reflexive-reciprocal-anticausative syncretism; the Slavic language Russian (EA) in which the said syncretism is characterised by the suffix *-sja/-s'* (e.g. Nedjalkov & Sil'nickij 1969: 40ff.; Faltz 1985: 11ff.; Gerritsen 1990; Israeli 1997; Kazenin 2001a: 902; Knjazev 2007: 680f.; Malchukov 2015: 113f.; 2017: 7f.; i. a.). The diachrony of the multiplex syncretism in Russian is better known than that of the Permic languages discussed below. As described in the next chapter, the Russian suffix *-sja/-s'* ultimately descends from the Proto-Indo-European reflexive pronoun **s(u)e* (Kulikov 2010: 397; 2013: 276). It is worth noting that Udmurt, Komi, and

Russian are spoken in close proximity to each other, and it is not unlikely that the languages have influenced each other with regard to the functional scope of the voice marking in the respective languages.

Russian (personal knowledge; cf. Knjazev 2007: 680f.; Malchukov 2017: 7f.)

528.	PASS	*stroit'*	'to build sth.'	↔	*stroit'-**sja***	'to be built [by sb.]'
529.	PASS	*pisat'*	'to write sth.'	↔	*pisat'-**sja***	'to be written [by sb.]'
530.	ANTP	*kusat'*	'to bite sth.'	↔	*kusat'-**sja***	'to bite [sth.]'
531.	ANTP	*bodat'*	'to butt sb.'	↔	*bodat'-**sja***	'to butt [sb.]'
532.	REFL	*myt'*	'to wash sth.'	↔	*myt'-**sja***	'to wash self'
533.	REFL	*odevat'*	'to dress sb.'	↔	*odevat'-**sja***	'to dress self'
534.	RECP	*vstretit'*	'to meet sb.'	↔	*vstretit'-**sja***	'to meet e.o.'
535.	RECP	*celovat'*	'to kiss sb.'	↔	*celovat'-**sja***	'to kiss e.o.'
536.	ANTC	*slomat'*	'to break sth.'	↔	*slomat'-**sja***	'to break'
537.	ANTC	*zakryt'*	'to close sth.'	↔	*zakryt'-**sja***	'to close'

As briefly noted in §3.1.3, Geniušienė (1987) lists reflexive, reciprocal, "decausative" (anticausative), passive, and "absolute" (antipassive) functions for "suffixes containing *-d-* or *-z-*" in the Ugric language Hungarian (EA) and the "reflexive prefixes *na-* and *nɨɨ-*" in the Uto-Aztecan language Shoshoni (NA). However, as argued in the same section, none of the suffixes can serve as voice marking in more than four voices according to the present study, and multiplex syncretism can consequently not be recognised for the respective languages. The related languages included in the sample of the present study (i.e. Northern Mansi and Ute, respectively) do not feature any multiplex syncretism either. While 28 other multiplex patterns of syncretism can logically be posited in addition to passive-antipassive-reflexive-reciprocal-anticausative syncretism (cf. tab. 7 p. 70), these all remain unattested for the time being in both the sample and in the literature in general. The general cross-linguistic absence of multiplex voice syncretism is not surprising considering the high degree of functional ambiguity such syncretism entails. Thus, it seems that passive-antipassive-reflexive-reciprocal-anticausative syncretism represents the upper limit of complexity regarding voice syncretism.

5.5 Summary

As demonstrated in this chapter, 24 patterns of voice syncretism have been attested in the language sample of the present study; these patterns were already listed in the beginning of the chapter. Observe that seven of these patterns are attested exclusively as part of more complex voice syncretism: passive-antipassive-reflexive-reciprocal/anticausative syncretism (incl. passive-antipassive-reflexive, passive-antipassive-reciprocal, antipassive-reciprocal-anticausative), causative-reflexive-reciprocal syncretism, and causative-passive reflexive syncretism. These seven patterns are entailed by the complex syncretism in, e.g., Eastern Armenian, Acazulco Otomí, and Udmurt, i.a. If these patterns are ignored, and only the most complex syncretism in individual languages is counted, the number of attested patterns is 17. In any case, for the sake of easy reference, the complex syncretism in each of the languages addressed in this chapter is summarised in table 13 on the next page.

Observe that parentheses in the table indicate type 1b syncretism, and square brackets indicate type 2 syncretism. As evident in the table, complex voice syncretism is most commonly attested exclusively as type 1 syncretism. As briefly mentioned in §5.1, for practical reasons it was not possible to illustrate all patterns of middle syncretism in all languages in which they are attested. Thus, it can be mentioned here that passive-reflexive-anticausative syncretism also is attested in the Germanic language Danish (EA); passive-reflexive-anticausative syncretism also in the Kordofanian language Lumun (AF), the Sino-Tibetan language Dhimal (EA), and the Panoan language Chácobo (SA); and passive-reflexive-reciprocal syncretism also in Páez, the Athapaskan language Tanacross (both NA), Yauyos Quechua, and the language isolate Mosetén (both SA). In the latter three languages the syncretism in question involves some partial resemblance. Finally, reflexive-reciprocal-anticausative syncretism is also attested in the Semitic language Darfur Arabic (AF), the South-Central Dravidian language Telugu (EA), the language isolate Gaagudju, the Mangrida language Gurr-Goni (both AU), the Yuman language Jamul Tiipay (NA), the language isolate Movima, the Cariban language Panare, the Caribbean Arawakan language Garifuna, the Central Arawakan language Paresi-Haliti (all four SA), and the North Halmaheran language Ternate (PN). In the latter two languages the syncretism

in question involves some partial resemblance. The voice marking characterising the syncretism in these eighteen languages can be found in appendix C.

Table 13. Overview of complex voice syncretism

	Marking	REFL	RECP	ANTC	PASS	ANTP	CAUS	APPL
E. Armenian	*-v*	✓	✓	✓	✓			
H. Nahuatl	*mo-*	✓	✓	✓	✓			
Yeri	*d-*	✓	✓	✓				
Hup	*hup-*	✓	✓		✓			
Kayardild	*-yii/-V*	✓		✓	✓			
Sidaama	*-am*		✓	✓	✓			
Tatar	*-n*	✓		✓	✓	✓		
Mosetén	*-ki*			✓	✓	✓		
A. Otomí	*n-*	✓	✓	✓		✓		
Ese Ejja	*xa-…-ki*	✓	✓	✓		✓		
Chukchi	*-tku*	✓	✓	✓		✓		
Cherokee	*at(aa)(t)-*	✓	✓	(✓)		✓		
Katukina-K.	*-i/-k/-hik*	✓	✓			✓		
Nunggubuyu	*-n^{y}ji*	✓	✓			✓		
Oksapmin	*t-*	✓		✓		✓		
Nunggubuyu	*-i*	✓		✓		✓		
C. A. Yupik	*-ut*		✓			✓		✓
Wolaytta	*-ett/-étt*	✓	✓		✓		(✓)	
Korean	*-(C)i*			✓	✓		✓	
Yine	*-kaka*, [*-ka*]		✓		[✓]		✓	
Chukchi	[*r-/n-*]*…-et*	✓		✓			[✓]	
Kutenai	*-(i)ɬ*				✓		✓	✓
Chácobo	*-ʔak*[*á*]				[✓]		✓	✓
Udmurt	*-śk*	✓	✓	✓	✓	✓		

6 Distribution of voices and voice syncretism

This chapter provides a more detailed distributional overview of voice syncretism in terms of type, frequency, and geography (§6.3). For good measure, this overview is preceded by brief discussions of voices in general and dedicated voice marking (§6.1 and §6.2, respectively) because voices are a prerequisite for voice syncretism, and voice marking which is not syncretic is per definition restricted to a single voice. The various tables and statistics presented in this chapter are all based on data obtained from the languages of the language sample in the present study (§1.4). The data itself can be found in appendices B and C. Table 14 below shows the number of (WALS) genera and thereby languages included in the said sample according to macroarea. The table also shows the number of languages in which at least one voice has been attested (+ V) as well as the number of languages in which at least one pattern of voice syncretism has been attested (+ VS). Note that the first row of percentages is based on the numbers of genera in WALS according to macroarea (cf. tab. 1 p. 25) while the second and third rows of percentages are based on the genera included in this sample (cf. tab. 2 p. 26). As seen in the table, close to nine tenth of all the languages in the sample feature at least one voice, while a little less than half of all languages feature at least one pattern of voice syncretism.

Table 14. Sample according to languages with voice syncretism

	#							%						
	AF	EA	AU	PN	NA	SA	Σ	AF	EA	AU	PN	NA	SA	Σ
WALS	77	82	42	136	101	104	542							
Sample	39	41	21	48	36	37	222	50.6	50.0	50.0	35.3	35.6	35.6	41.0
+ V	33	37	19	38	36	34	197	84.6	90.2	90.5	79.2	100	91.9	88.7
+ VS	19	20	14	9	19	23	104	48.7	48.8	66.7	18.8	52.8	62.2	46.8

As table 14 above shows, the percentual coverage of African, Eurasian, and Australian genera is better than that of Papunesian, North American, and South American genera as a consequence of the biographical bias. Nevertheless, as already discussed in §1.4, the proportional differences are not statistically significant, and the

findings presented in this chapter are thus considered reasonably balanced and representative of the world's languages.

6.1 Distribution of voices

As noted in the beginning of this chapter, close to nine tenth of the languages in the sample feature at least one voice, and the geographic distribution of these languages is presented in table 15 below. The voices are listed according to their overall cross-linguistic frequency with the causative voice being most frequent and the antipassive voice least frequent among the languages in the sample; note that the anticausative and passive voices are equally frequent. As seen in the table, there is considerable variation in the prevalence of individual voices across macroareas, and voices are noticeably infrequent among languages of Papunesia. In fact, the Papunesian macroarea accounts for the lowest percentages of languages featuring causatives, reflexives, anticausatives, passives, and antipassives. By contrast, North American languages are generally characterised by a high prevalence of all seven voices.

Table 15. Voices according to macroarea (by frequency)

		#							%						
		AF	EA	AU	PN	NA	SA	Σ	AF	EA	AU	PN	NA	SA	Σ
1	CAUS	28	33	12	25	34	30	162	71.8	80.5	57.1	52.1	94.4	81.1	73.0
2	RECP	17	22	17	24	25	29	134	43.6	53.7	81.0	50.0	69.4	78.4	60.4
3	APPL	13	10	8	24	26	21	102	33.3	24.4	38.1	50.0	72.2	56.8	45.9
4	REFL	10	14	15	6	22	26	93	25.6	34.1	71.4	12.5	61.1	70.3	41.9
5	ANTC	16	20	8	10	16	10	80	41.0	48.8	38.1	20.8	44.4	27.0	36.0
6	PASS	24	17	2	3	20	14	80	61.5	41.5	9.5	6.3	55.6	37.8	36.0
7	ANTP	9	7	2	4	11	8	41	23.1	17.1	9.5	8.3	30.6	21.6	18.5
									39	41	21	48	36	37	222 *n*

Table 16 on the next page provides a different perspective on the geographic distribution of voices by showing the total number of voices attested in individual languages. Note that the maximum number of voices found in any given language is limited by the seven voices of focus in this study. As seen in the table, languages with three or four voices are most common in the language sample, while languages with seven voices are least common. Only eight languages of the latter kind are attested in

the sample, five of which form two geographic clusters in the Americas: the Uto-Aztecan language Huasteca Nahuatl, the Totonacan language Filomeno Mata Totonac, and the Oto-Manguean language Acazulco Otomí in the heart of Mexico; and the Panoan language Chácobo and the isolate Mosetén in Northwestern Bolivia. The remaining three languages are the Central Salish language Musqueam of North America, the Kordofanian language Lumun of Africa, and the isolate Ainu of Eurasia. Languages with seven voices are unattested in Australia and Papunesia. Only 11.3 percent of the languages in the sample feature no voice at all, none of which are spoken in North America.

Table 16. Number of voices according to macroarea

		#							%						
		AF	EA	PN	AU	NA	SA	Σ	AF	EA	AU	PN	NA	SA	Σ
Number of voices	0	6	4	2	10	0	3	25	15.4	9.8	9.5	20.8	0	8.1	11.3
	1	3	9	1	9	3	1	26	7.7	22.0	4.8	18.8	8.3	2.7	11.7
	2	7	2	6	12	3	6	36	17.9	4.9	28.6	25.0	8.3	16.2	16.2
	3	7	8	4	9	6	5	39	17.9	19.5	19.0	18.8	16.7	13.5	17.6
	4	6	10	2	5	7	8	38	15.4	24.4	9.5	10.4	19.4	21.6	17.1
	5	6	3	5	2	7	8	31	15.4	7.3	23.8	4.2	19.4	21.6	14.0
	6	3	4	1	1	6	4	19	7.7	9.8	4.8	2.1	16.7	10.8	8.6
	7	1	1	0	0	4	2	8	2.6	2.4	0	0	11.1	5.4	3.6
									39	41	21	48	36	37	222 *n*

The percentages in table 16 above are presented as cumulative percentages in table 17 on the next page. As evident in this table, the cumulative percentages of the Papunesian macroarea are consistently higher than those of other macroareas, while the cumulative percentages of the North American macroarea are consistently lower. For instance, 83.3 percent of Papunesian languages in the sample have three or fewer attested voices, while this is the case for only 33.3 percent of North American languages. Put differently, 66.7 percent of North American languages feature more than three voices, while the same number is only 16.7 percent for Papunesian languages. Languages of other macroareas lie somewhere in between these poles.

Table 17. Number of voices according to macroarea (cumulative)

Number of voices	AF	EA	AU	PN	NA	SA
0	15.4	9.8	9.5	20.8	0	8.1
1	23.1	31.7	14.3	39.6	8.3	10.8
2	41.0	36.6	42.9	64.6	16.7	27.0
3	59.0	56.1	61.9	83.3	33.3	40.5
4	74.4	80.5	71.4	93.8	52.8	62.2
5	89.7	87.8	95.2	97.9	72.2	83.8
6	97.4	97.6	100		88.9	94.6
7	100					

Cumulative percentages based on table 16.

Finally, table 18 shows the probability of any given language in the sample with a particular voice (on the Y-axis) also having another voice (on the X-axis). For instance, if a language has a reflexive voice, the probability of the language also featuring a reciprocal voice is 94.6 percent. On the contrary, if a language has a reciprocal voice, the probability of the language also featuring a reflexive voice is only 65.7 percent. The probabilities in this table are naturally closely linked to the overall frequencies of the respective voices (cf. tab. 15), as reflected for instance by the consistently high probabilities of a language having a causative voice owing to the high prevalence of causative voices cross-linguistically.

Table 18. Voices according to probability

	REFL	RECP	ANTC	PASS	ANTP	CAUS	APPL
REFL →		94.6	54.8	47.3	24.7	84.9	62.4
RECP →	65.7		44.8	43.3	19.4	82.8	60.4
ANTC →	63.8	75.0		56.3	26.3	91.3	53.8
PASS →	55.0	72.5	56.3		28.8	92.5	50.0
ANTP →	56.1	63.4	51.2	56.1		87.8	56.1
CAUS →	48.8	68.5	45.1	45.7	22.2		53.7
APPL →	56.9	79.4	42.2	39.2	22.5	85.3	

It is worth stressing here that the tables and discussions in this section constitute a distributional overview of voices in the sample but say nothing about dissimilarities nor similarities in voice marking. Dissimilarities are addressed briefly in terms of dedicated voice marking in the next section, while similarities are discussed in more detail in terms of voice syncretism in §6.3.

6.2 Distribution of dedicated voice marking

As defined in chapter 3, dedicated voice marking refers to voice marking found in only one of the seven voices of focus in this study. For example, in the Tupian language Karo the passive prefix *pe-*, the reflexive prefix *mãm-*, the reciprocal prefix *ro-*, and the causative prefixes *ma-* and *ta-* are all regarded as dedicated voice marking because the respective prefixes do not occur in any other voice (Gabas 1999). The distribution of such dedicated voice marking among the languages of the sample is presented in table 19 below according to macroarea. Note that the percentages in this table are based on the numbers of languages included for each macroarea (and in total) in the sample. As seen in this table, a relatively low number of languages in the sample feature dedicated reflexive, anticausative, passive, or antipassive voice marking, while more than half feature dedicated causative voice marking. In turn, dedicated reciprocal or applicative voice marking is attested in roughly one third of the languages in the sample.

Table 19. Dedicated voice marking according to voice and macroarea (I)

	#							%						
	AF	EA	AU	PN	NA	SA	Σ	AF	EA	AU	PN	NA	SA	Σ
REFL	2	3	2	2	8	6	23	5.1	7.3	9.5	4.2	22.2	16.2	10.4
RECP	7	12	8	19	11	10	67	17.9	29.3	38.1	39.6	30.6	27.0	30.2
ANTC	5	8	2	7	8	2	32	12.8	19.5	9.5	14.6	22.2	5.4	14.4
PASS	11	6	0	3	11	7	38	28.2	14.6	0	6.3	30.6	18.9	17.1
ANTP	6	4	0	2	7	5	24	15.4	9.8	0	4.2	19.4	13.5	10.8
CAUS	17	22	10	21	28	26	124	43.6	53.7	47.6	43.8	77.8	70.3	55.9
APPL	8	4	6	21	18	17	74	20.5	9.8	28.6	43.8	50.0	45.9	33.3
								39	41	21	48	36	37	222 *n*

Table 20 on the next page provides a clearer picture of the relative proportions of dedicated voice marking. This table is based on the same underlying numbers as table 19 above but the percentages are calculated according to the numbers of languages in the sample for which a given voice has been attested according to macroarea (cf. tab. 15 p. 180).

Table 20. Dedicated voice marking according to voice and macroarea (II)

	AF	EA	AU	PN	NA	SA	Σ
REFL	20.0	21.4	13.3	33.3	36.4	23.1	24.7
RECP	41.2	54.5	47.1	79.2	44.0	34.5	50.0
ANTC	31.3	40.0	25.0	70.0	50.0	20.0	40.0
PASS	45.8	35.3	0	100	55.0	50.0	47.5
ANTP	66.7	57.1	0	50.0	63.6	62.5	58.5
CAUS	60.7	66.7	83.3	84.0	82.4	86.7	76.5
APPL	61.5	40.0	75.0	87.5	69.2	81.0	72.5

Percentages based on the numbers of languages with one or more voices (vid. tab. 15 p. 180).

As noted in the beginning of this chapter, dedicated voice contrasts with voice syncretism, and the remaining percentages not covered in table 20 above thus represent voice syncretism. An inverse version of the table is provided and discussed in §6.3.1 (vid. tab. 24 p. 187) for which reason the tables above are not addressed further here.

6.3 Distribution of voice syncretism

As shown in the beginning of this chapter, 104 (i.e. 46.8 percent) of the 222 languages in the language sample of the present study feature voice syncretism (vid. tab. 14 p. 179). These languages are presented on the next page in tables 21 and 22 according to type and macroarea. As defined in chapter 3, type 1a refers to unconditioned full resemblance in voice marking (§3.2.1), type 1b to conditioned full resemblance (§3.2.2), type 2 to partial resemblance (§3.2.3), and type 3 to so-called reverse resemblance (§3.2.4). Note that a language can possess different types of voice syncretism for which reason it can be counted in several rows in the tables. Moreover, note that the row of type 1 syncretism denotes the numbers of languages with type 1a and/or type 2b syncretism; the numbers in this row happen to coincide with the numbers for type 1a syncretism indicating that all languages in the sample featuring type 1b syncretism also feature type 1a syncretism.

Table 21 shows that type 1 syncretism is attested in 91 languages (41 percent), type 2 syncretism in 25 languages (11.3 percent), and type 3 syncretism in six languages (2.7 percent). Observe that type 2 syncretism is not attested for a single Australian language in the sample, yet the said type of syncretism is not entirely

unknown to this macroarea as it has been attested in at least one Pama-Nyungan language in the literature (vid. ex. 107 p. 93). Geographical differences are addressed in more detail in §6.3.4. Table 22 is based on the same underlying numbers as table 21 but the percentages are calculated according to the numbers of languages for which voice syncretism has been attested in the sample. This table shows that close to nine tenth of the patterns of syncretism attested among the languages in the sample are of type 1, while roughly a quarter are of type 2. Evidently, although type 2 syncretism has received little attention in the literature, it is not uncommon cross-linguistically.

Table 21. Voice syncretism according to type and macroarea (I)

		#							%						
		AF	EA	AU	PN	NA	SA	Σ	AF	EA	AU	PN	NA	SA	Σ
Type	1	15	19	14	6	17	20	91	38.5	46.3	66.7	12.5	47.2	54.1	41.0
	a	15	19	14	6	17	20	91	38.5	46.3	66.7	12.5	47.2	54.1	41.0
	b	3	0	0	0	3	0	6	7.7	0	0	0	8.3	0	2.7
Type	2	4	5	0	3	3	10	25	10.3	12.2	0	6.3	8.3	27.0	11.3
Type	3	0	2	1	1	0	2	6	0	4.9	4.8	2.1	0	5.4	2.7
									39	41	21	48	36	37	222 *n*

Table 22. Voice syncretism according to type and macroarea (II)

		AF	EA	AU	PN	NA	SA	Σ
Type	1	78.9	95.0	100	66.7	89.5	87.0	87.5
	a	78.9	95.0	100	66.7	89.5	87.0	87.5
	b	15.8	0	0	0	15.8	0	5.8
Type	2	21.1	25.0	0	33.3	15.8	43.5	24.0
Type	3	0	10.0	7.1	11.1	0	8.7	5.8
		20	20	14	9	19	23	105 *n*

Type 1 and type 2 syncretism serve as the basis for most of the tables and statistics in the following sections, unless otherwise indicated. By contrast, type 3 syncretism is henceforth largely ignored due to its peculiar nature which has already been discussed in detail in §3.2.4. The next section provides a general overview of voice syncretism among the languages in the sample, while more detailed treatments of voice syncretism follow in §6.3.1 according to simplex pattern, in §6.3.3 according to complex pattern, and in §6.3.4 according to macroarea.

6.3.1 Overview

The geographical distribution of languages with voice syncretism in the language sample of the present study is presented in table 23. Observe that the table shows syncretic voice marking according to voice but does not show individual patterns of voice syncretism; these are addressed in following sections. For instance, the first row in the aforementioned table encompasses all African languages in which reflexive voice marking is syncretic. When the table is compared to the corresponding table on dedicated voice marking in §6.2 (vid. tab. 19 p. 183), it is evident that more languages in the sample feature reflexive, anticausative, and/or passive syncretism than dedicated voice marking. In contrast, more languages feature dedicated antipassive, causative, and/or applicative dedicated voice marking than voice syncretism. Interestingly, reciprocal syncretism is attested in an exactly equally big portion of languages in the sample as dedicated reciprocal voice marking (i.e. 30.2 percent). Thus, the reciprocal voice does not have any disposition towards neither dedicated marking nor syncretism.

Table 23. Voice syncretism according to voice and macroarea (I)

	#							%						
	AF	EA	AU	PN	NA	SA	Σ	AF	EA	AU	PN	NA	SA	Σ
REFL	8	11	13	4	14	20	70	20.5	26.8	61.9	8.3	38.9	54.1	31.5
RECP	10	10	9	5	14	19	67	25.6	24.4	42.9	10.4	38.9	51.4	30.2
ANTC	11	12	6	3	8	8	48	28.2	29.3	28.6	6.3	22.2	21.6	21.6
PASS	13	11	2	0	9	7	42	33.3	26.8	9.5	0	25.0	18.9	18.9
ANTP	3	3	2	2	4	3	17	7.7	7.3	9.5	4.2	11.1	8.1	7.7
CAUS	11	11	2	4	6	4	38	28.2	26.8	9.5	8.3	16.7	10.8	17.1
APPL	5	6	2	3	8	4	28	12.8	14.6	9.5	6.3	22.2	10.8	12.6
								39	41	21	48	36	37	222 *n*

Table 24 on the next page shows the proportions of the numbers in table 23 in relation to the numbers of languages in the sample for which a given voice is attested according to macroarea (vid. tab. 15 p. 180). Thus, table 24 is basically an inverse version of the corresponding table on dedicated v oice marking presented in §6.2 (vid. tab. 20 p. 184). The table shows that voice marking in a reflexive voice is predominantly syncretic, while voice marking in causative and applicative voices predominantly is dedicated. Voice marking in the remaining voices lie in between

these poles; as already mentioned above, dedicated reciprocal voice marking and reciprocal syncretism are distributed exactly equally. The cross-linguistic prevalence of reflexive syncretism is particularly interesting in relation to the fact that reflexivity is commonly the centre of attention in studies of voice syncretism (cf., e.g., Kemmer 1993; §3.1.1). The high overall percentage clearly shows that reflexive voice marking is more prone to be syncretic than voice marking associated with other voices, and the traditional focus on reflexive syncretism is therefore not unfounded. Additionally, it can be noted that causative and applicative voice syncretism are more widespread among African and Eurasian language. Furthermore, it can be observed that passive voice marking among the Papunesian languages in the sample is consistently dedicated, but among the Australian languages syncretic and likewise for antipassive voice marking for the latter languages. However, here it worth keeping in mind that the passive and antipassive voices are rather uncommon among the languages in the first place.

Table 24. Voice syncretism according to voice and macroarea (II)

	AF	EA	AU	PN	NA	SA	Σ
REFL	80.0	78.6	86.7	66.7	63.6	76.9	75.3
RECP	58.8	45.5	52.9	20.8	56.0	65.5	50.0
ANTC	68.8	60.0	75.0	30.0	50.0	80.0	60.0
PASS	54.2	64.7	100	0	45.0	50.0	52.5
ANTP	33.3	42.9	100	50.0	36.4	37.5	41.5
CAUS	39.3	33.3	16.7	16.0	17.6	13.3	23.5
APPL	38.5	60.0	25.0	12.5	30.8	19.0	27.5

Percentages based on the numbers of languages with one or more voices (vid. tab. 15 p. 180).

Table 25 on the next page provides a more detailed overview of the numbers of individual voices that share voice marking; the Y-axis denotes a given voice and its voice marking, while the X-axis indicates the number of other voices sharing the same voice marking. Illustratively, the table shows that 39.8 percent of reflexive voice syncretism attested in the sample involves the reflexive voice in addition to one other voice; by contrast, only 1.1 percent of the attestations involves the reflexive voice in addition to four other voices. The table also covers dedicated voice marking (i.e. the columns “0”) for easy reference and comparison; the final column (i.e. “2–4”)

represents the cumulative percentages for the three preceding columns. The latter column shows for instance that voice marking in the anticausative voice is more likely to be shared by two or more voices (i.e. 35 percent) than just one other voice (i.e. 25 percent). The same goes for voice marking in the antipassive voices (cf. 29.3 and 12.1 percent, respectively). By contrast, the opposite is true for voice marking in the other voices. This shows that that anticausative and antipassive voices are more commonly linked with multiple other voices in terms of voice marking than the reflexive, reciprocal, causative, and applicative voices are. This can be probably be explained at least in part by the fact that the anticausative and antipassive voices are more likely to evolve from other voices than to serve as origins of voice syncretism themselves, as demonstrated in the next chapter. Furthermore, it can be observed that causative or applicative voice marking only rarely is shared by more than one other voice. The most notable exception here is the North Omotic language Wolaytta (AF) which features causative-passive-reflexive-reciprocal syncretism (§5.3.1). Additionally, note that the Permic language Udmurt (EA) is the only language featured in the column "4" due to its multiplex syncretism (§5.4).

Table 25. Voice syncretism according to voice and complexity

	#					%					
	0	1	2	3	4	0	1	2	3	4	2–4
REFL	23	37	25	7	1	24.7	39.8	26.9	7.5	1.1	35.5
RECP	67	34	26	6		50.0	25.4	19.4	4.5	0.7	24.6
ANTC	32	20	21	6		40.0	25.0	26.3	7.5	1.3	35.0
PASS	38	22	15	4		47.5	27.5	18.8	5.0	1.3	25.0
ANTP	24	5	7	4		58.5	12.2	17.1	9.8	2.4	29.3
CAUS	124	32	5	1	0	76.5	19.8	3.1	0.6	0	3.7
APPL	74	24	4			72.5	23.5	3.9			3.9

Percentages based on attestations of voices according to macroarea (vid. tab. 15 p. 180).

A more detailed discussion of the distribution of the individual simplex patterns of voice syncretism underlying the numbers in column "1" of table 25 is provided in the next section, while the complex patterns of voice syncretism underlying the numbers in columns "2–4" are treated in more detail in §6.3.3.

6.3.2 By simplex pattern

Table 26 on the next page shows the distribution of simplex voice syncretism among the language of the sample according to pattern and type. The patterns of voice syncretism in the table are sorted according to type 1 and type 2 attestations combined (marked in bold), listed from the most frequent pattern (reflexive-reciprocal syncretism) to the least frequent pattern (applicative-anticausative syncretism). The table encompasses all simplex voice syncretism attested in the language sample, including simplex patterns entailed by more complex voice syncretism, as the table would otherwise give the false impression that many languages lack certain patterns. Moreover, note that the individual figures for type 1 and type 2 attestations presented in the table horizontally do not necessarily sum up to the combined figures, as some languages feature both type and are therefore only counted once in the sum. It is also worth noting for instance that the type 3 attestations do not sum up to six vertically as perhaps expected given that it was mentioned in §3.2.4 that the phenomenon is attested in six languages in the sample. However, this is simply due to the fact that more than one pattern qualifies as type 3 syncretism in both the language isolate Mosetén (SA) and the Gunwinyguan language Nunggubuyu (AU); see appendix C.

The various patterns in table 26 have been grouped (by double lines) into five groups based on their frequencies (from the top down): 10.0+ percent (I), 5.1–10.0 percent (II), 2.1–5.0 percent (III), 0.1–2.0 percent (IV), unattested (V). As already noted in chapter 4, these groups of frequency roughly reflect the order in which the patterns were discussed in the said chapter (i.e. middle syncretism – antipassive syncretism – causative syncretism – applicative syncretism) with a few exceptions, notably causative-applicative and causative-passive syncretism. These two latter patterns are notably roughly as frequent as most of the patterns of middle syncretism; indeed, causative-applicative syncretism is cross-linguistically more prevalent than patterns involving the passive voice. Furthermore, observe that no pattern of simplex voice syncretism is attested in more than one fourth of the languages in the sample, and that all but two patterns are attested in less than ten percent. Evidently, most patterns of simplex voice syncretism are not particularly common cross-linguistically. However, it is worth keeping in mind that each of the languages in table 26 represents a unique genus, many of which encompass multiple languages. Thus, it is predicated that there

are hundreds of additional languages around the world featuring some of the patterns in the table.

Table 26. Voice syncretism according to simplex pattern and type

	#						%						
		1		2	3	Σ (1+2)		1		2	3	Σ (1+2)	
		a	b					a	b				
REFL-RECP	43	43	0	8	0	**49**	19.4	19.4	0	3.6	0	**22.1**	I
REFL-ANTC	33	32	1	0	0	**33**	14.9	14.4	0.5	0	0	**14.9**	
RECP-ANTC	18	17	1	4	0	**22**	8.1	7.7	0.5	1.8	0	**9.9**	
CAUS-APPL	18	17	1	2	2	**20**	8.1	7.7	0.5	0.9	0.9	**9.0**	
PASS-REFL	17	17	0	2	0	**19**	7.7	7.7	0	0.9	0	**8.6**	II
PASS-ANTC	17	17	0	0	0	**17**	7.7	7.7	0	0	0	**7.7**	
PASS-RECP	9	9	0	6	0	**15**	4.1	4.1	0	2.7	0	**6.8**	
CAUS-PASS	9	7	2	5	0	**14**	4.1	3.2	0.9	2.3	0	**6.3**	
ANTP-RECP	11	11	0	0	0	**11**	5.0	5.0	0	0	0	**5.0**	
ANTP-REFL	10	10	0	0	0	**10**	4.5	4.5	0	0	0	**4.5**	
ANTP-ANTC	10	9	1	0	0	**10**	4.5	4.1	0.5	0	0	**4.5**	III
APPL-RECP	3	3	0	5	3	**8**	1.4	1.4	0	2.3	1.4	**3.6**	
CAUS-ANTC	4	3	1	1	0	**5**	1.8	1.4	0.5	0.5	0	**2.3**	
PASS-ANTP	4	4	0	0	0	**4**	1.8	1.8	0	0	0	**1.8**	
CAUS-RECP	2	1	1	2	1	**4**	0.9	0.5	0.5	0.9	0.5	**1.8**	
APPL-PASS	2	2	0	1	1	**3**	0.9	0.9	0	0.5	0.5	**1.4**	
APPL-ANTP	2	2	0	0	1	**2**	0.9	0.9	0	0	0.5	**0.9**	IV
CAUS-ANTP	2	1	1	0	0	**2**	0.9	0.5	0.5	0	0	**0.9**	
CAUS-REFL	1	0	1	1	0	**2**	0.5	0	0.5	0.5	0	**0.9**	
APPL-REFL	0	0	0	1	2	**1**	0	0	0	0.5	0.9	**0.5**	
APPL-ANTC	0	0	0	0	0	**0**	0	0	0	0	0	**0**	V
							n = 222						

As already discussed in §3.1.3 and §3.1.4, data on the cross-linguistic frequencies for some of the simplex patterns in the table can be extracted from prior typological studies dealing in part with voice syncretism by Geniušienė (1987) and Haspelmath (1990). As this data showed, patterns of middle syncretism were also found to be more frequent than patterns of antipassive syncretism in the aforementioned studies, although the frequential orders and frequencies themselves differed to varying degrees between the studies and from the findings in table 26. Additionally, more explicit comments on the cross-linguistic prevalence of voice syncretism can be found sporadically in the literature, often in relation to patterns of middle syncretism.

Illustratively, as already cited in §4.1.1, Creissels (2016: 66) argues that "[t]he reflexive-reciprocal syncretism does not seem to be particularly widespread in the languages of the world." Maslova & Nedjalkov (2005: 430), on the contrary, argue that in every fourth language "[t]he reciprocal and reflexive constructions are formally identical," and Heine & Miyashita (2008: 171) that "at least every third language has a REF-REC category." Nevertheless, it is here worth noting that the estimates by Maslova & Nedjalkov and Heine & Miyashita also include periphrastic constructions of various kinds, unlike in the present study. In any case, the estimate by Maslova & Nedjalkov is noteworthily close to the figure of 22.1 percent attested here.

Sporadic comments on other cross-linguistically frequent patterns of syncretism can also be found in the literature, for example on causative-applicative syncretism. Shibatani & Pardeshi (2002: 116) state that "[i]n a fair number of languages, causative morphemes are associated with the applicative function," and Peterson (2007: 182) remarks that "[c]ausative-applicative syncretism is something which is not reported very frequently for causative markers explicitly, but it does occur." Malchukov (2017: 10) argues that the syncretism in question "seems actually to be more widespread cross-linguistically than reported." Indeed, as table 26 on the previous page shows, causative-applicative syncretism is more prevalent in the language sample of the present study than several patterns of middle syncretism. By contrast, observations on the distribution of less frequent patterns of syncretism are very scarce. One such observation is provided by Creissels (2012: 10) who remarks that passive-antipassive syncretism (and various other patterns of syncretism) "are extremely common cross-linguistically." By contrast, Dixon (1994: 151) states that "[j]ust occasionally, one finds a language in which a single derivational affix can have either passive or antipassive effect," and Zúñiga & Kittilä (2019: 241) argues that passive-antipassive syncretism is "rather difficult to find." These suspicions can be confirmed here, as the said syncretism is attested in four languages here and is thus among the rarer patterns of syncretism. Zúñiga & Kittilä also note that they have only found "one clear case" of causative-anticausative syncretism (id.: 244), yet in the present study this pattern of syncretism has roughly the same frequency as the aforementioned passive-antipassive syncretism.

Finally, table 27 shows the probability of voice marking in a voice on the Y-axis in any given language being syncretic with voice marking in another voice on the X-axis. For instance, the probability of reflexive voice marking being syncretic with reciprocal voice marking is 52.7 percent. In other words, a reflexive voice is attested in 93 languages in the sample (cf. tab. 15 p. 180) and 49 of the aforementioned languages (i.e. 52.7 percent) feature reflexive-reciprocal syncretism (cf. tab. 26). By contrast, the probability of applicative voice marking being syncretic with anticausative voice marking is zero percent, as no such pattern of voice syncretism is attested in the language sample. In light of the data presented and discussed in this and the preceding section, it is not surprising that the probabilities for patterns of middle syncretism in general are higher than those for other patterns. However, it is also worth noting the comparatively high probabilities pertaining to causative and applicative voice marking which highlights the close relationship between the two voices seen in many languages (§4.3.2). Indeed, as shown in §7.5.3 and §7.6.3 in the next chapter, it appears that causative voice marking can develop an applicative function and applicative voice marking can develop a causative function. Likewise, observe the high probability of passive voice marking being syncretic with causative voice marking (i.e. 17.5 percent); as shown in §7.5.2, causative voice marking is known to have developed a passive function in variety of languages.

Table 27. Probability of language featuring simplex voice syncretism

	REFL	RECP	ANTC	PASS	ANTP	CAUS	APPL
REFL →		52.7	35.5	20.4	10.8	2.2	1.1
RECP →	36.6		16.4	11.2	8.2	3.0	6.0
ANTC →	41.3	27.5		21.3	12.5	6.3	0
PASS →	23.8	18.8	21.3		5.0	17.5	3.8
ANTP →	24.4	26.8	24.4	9.8		4.9	4.9
CAUS →	1.2	2.5	3.1	8.6	1.2		12.3
APPL →	1.0	7.8	0	2.9	2.0	19.6	

The distribution of simplex patterns of voice syncretism according to macroarea is investigated in more detail in §6.3.4, while complex patterns of voice syncretism are treated and discussed in the following section.

6.3.3 By complex pattern

Table 28 provides an overview of the distribution of complex voice syncretism in the languages of the language sample according to pattern and type. As mentioned in the preceding chapter, there are logically 99 patterns of such syncretism, but only 24 of these patterns are attested in the sample and thus listed in the aforementioned table. Observe that the table also encompasses complex voice patterns entailed by more complex patterns to make it comparable with the tables covering simplex voice syncretism in the preceding section. As noted in §5.5, if only the most complex syncretism is counted, the number of attested patterns is 17; the statistics of these patterns are provided on the far right side of table 28 for comparison.

Table 28. Voice syncretism according to complex pattern and type

	#			%			#	
	1	2	Σ (1+2)	1	2	Σ (1+2)	1	2
REFL-RECP-ANTC	16	2	**18**	7.2	0.9	**8.1**	9	2
PASS-REFL-RECP	6	3	**9**	2.7	1.4	**4.1**	2	3
PASS-REFL-ANTC	8	0	**8**	3.6	0	**3.6**	4	0
ANTP-REFL-ANTC	8	0	**8**	3.6	0	**3.6**	2	0
ANTP-REFL-RECP	8	0	**8**	3.6	0	**3.6**	3	0
PASS-RECP-ANTC	5	0	**5**	2.3	0	**2.3**	2	0
ANTP-RECP-ANTC	5	0	**5**	2.3	0	**2.3**	–	–
PASS-ANTP-ANTC	3	0	**3**	1.4	0	**1.4**	1	0
PASS-ANTP-REFL	2	0	**2**	0.9	0	**0.9**	–	–
CAUS-APPL-PASS	1	1	**2**	0.5	0.5	**0.9**	1	0
CAUS-PASS-RECP	1	1	**2**	0.5	0.5	**0.9**	0	1
CAUS-PASS-REFL	1	0	**1**	0.5	0	**0.5**	–	–
CAUS-PASS-ANTC	1	0	**1**	0.5	0	**0.5**	1	0
CAUS-REFL-RECP	1	0	**1**	0.5	0	**0.5**	–	–
PASS-ANTP-RECP	1	0	**1**	0.5	0	**0.5**	–	–
APPL-ANTP-RECP	1	0	**1**	0.5	0	**0.5**	1	0
CAUS-REFL-ANTC	0	1	**1**	0	0.5	**0.5**	0	1
ANTP-REFL-RECP-ANTC	5	0	**5**	2.3	0	**2.3**	4	0
PASS-REFL-RECP-ANTC	3	0	**3**	1.4	0	**1.4**	2	0
PASS-ANTP-REFL-ANTC	2	0	**2**	0.9	0	**0.9**	1	0
CAUS-PASS-REFL-RECP	1	0	**1**	0.5	0	**0.5**	1	0
PASS-ANTP-REFL-RECP	1	0	**1**	0.5	0	**0.5**	–	–
PASS-ANTP-RECP-ANTC	1	0	**1**	0.5	0	**0.5**	–	–
PASS-ANTP-REFL-RECP-ANTC	1	0	**1**	0.5	0	**0.5**	1	0
	n = 222							

The complex patterns in table 28 on the previous page are grouped (by double lines) according to the number of voices sharing the same voice marking (from the top down): three voices, four voices, five voices. As already noted in the previous chapter, no complex pattern of voice syncretism involving more than five voices has been attested in the language sample nor in the literature. As seen in the table, the majority of complex patterns of voice syncretism are attested in less than five languages, and complex voice syncretism remains a rather marginal phenomenon cross-linguistically. In any case, it can be observed that complex patterns of middle and antipassive syncretism are more frequent than other patterns, which is not surprising in light of the discussions in the preceding sections. Furthermore, it might be worth noting that antipassive-reflexive-reciprocal-anticausative syncretism is the most frequent pattern of complex voice syncretism involving four voices and thus surpasses passive-reflexive-reciprocal-anticausative syncretism often associated with Indo-European languages.

Next, table 29 on the next page shows the probability of voice marking shared by two voices on the Y-axis in any given language being syncretic with voice marking in a third voice on the X-axis. For instance, the probability of reciprocal-anticausative voice marking being syncretic with reflexive voice marking is 81.8 percent. By contrast, the probability of the reciprocal-anticausative voice marking being syncretic with causative voice marking is zero percent, as no such complex pattern is attested in the language sample. Observe that the hyphens denote patterns of complex syncretism entailing the unattested simplex pattern of applicative-anticausative syncretism (§4.4.5). Moreover, the last column indicates the probability of voice marking shared by two voices being syncretic with any other voice marking. This column for instance shows that causative-reflexive and antipassive-reflexive syncretism always forms part of more complex syncretism. The underlying number of languages featuring the former syncretism is, however, low (two attestations) and it is difficult to draw any conclusions hereupon. By comparison, antipassive-reflexive syncretism is attested in ten languages, which indicates such syncretism does not occur in languages on its own but always forms part of more complex syncretism. A similar tendency can be discerned for, e.g., antipassive-anticausative voice marking (90.0 percent, 10

underlying attestations) and reciprocal-anticausative syncretism (90.9 percent, 22 underlying attestations).

Table 29. Probability of language featuring complex voice syncretism (I)

	REFL	RECP	ANTC	PASS	ANTP	CAUS	APPL	Any
REFL-RECP →			36.7	18.4	16.3	2.0	0	55.1
REFL-ANTC →		54.5		24.2	24.2	3.0	–	75.8
PASS-REFL →		47.4	42.1		10.5	5.3	0	73.7
ANTP-REFL →		80.0	80.0	20.0		0	0	100
CAUS-REFL →		50.0	50.0	50.0	0		0	100
APPL-REFL →		0	–	0	0	0		0
RECP-ANTC →	81.8			22.7	22.7	0	–	90.9
PASS-RECP →	60.0		33.3		6.7	13.3	0	80.0
ANTP-RECP →	72.7		45.5	9.1		0	9.1	81.8
CAUS-RECP →	25.0		0	50.0	0.0		0	50.0
APPL-RECP →	0		–	0	12.5	0		12.5
PASS-ANTC →	47.1	29.4			17.6	5.9	–	70.6
ANTP-ANTC →	80.0	50.0		30.0		0	–	90.0
CAUS-ANTC →	20.0	0		20.0	0		–	40.0
APPL-ANTC →	–	–		–	–	–		–
PASS-ANTP →	50.0	25.0	75.0			0	0	75.0
CAUS-PASS →	7.1	14.3	0.6		0		14.3	35.7
APPL-PASS →	0	0	–		0	66.7		66.7
CAUS-ANTP →	0	0	0	0			0	0
APPL-ANTP →	0	50.0	–	0		0		50.0
CAUS-APPL →	0	0	–	10.0	0			10.0

Table 30 on the next table differs from table 29 above in having voice marking in one voice as its baseline. Thus, table 30 shows the probability of voice marking in a voices on the X-axis in any given language being syncretism with voice marking shared by two other voices on the Y-axis. For instance, the probability of reflexive voice marking being syncretic with voice marking in the reciprocal and anticausative voices is 19.4 percent. In contrast, the probability of the reflexive voice marking being syncretic with voice marking in the applicative and reciprocal voices zero percent, as this complex pattern of syncretism is unattested in the language sample. The percentages in this table are substantially lower than those in table 29 owing to the fact that voice marking in many voices in many languages are not syncretic in the first place (cf. tab. 24 p. 187). As already noted in §6.3.1, the voice marking in the

antipassive or anticausative voice is prone to be syncretic with voice marking in more than one other voices (cf. tab. 25 p. 188); this is also evident in the table below which additionally shows that the aforementioned voices tend to be reflexive and reciprocal, or reflexive and anticausative. The table also shows that reflexive voice marking in one out of five languages is syncretic with reciprocal-anticausative voice marking.

Table 30. Probability of language featuring complex voice syncretism (II)

	REFL ↓	RECP ↓	ANTC ↓	PASS ↓	ANTP ↓	CAUS ↓	APPL ↓
REFL-RECP			22.5	11.3	19.5	0.6	0
REFL-ANTC		13.4		10.0	19.5	0.6	–
PASS-REFL		6.7	10.0		4.9	0.6	0
ANTP-REFL		6.0	10.0	2.5		0	0
CAUS-REFL		0.7	1.3	1.3	0		0
APPL-REFL		0	–	0.0	0	0	
RECP-ANTC	19.4			6.3	12.2	0	–
PASS-RECP	9.7		6.3		2.4	1.2	0
ANTP-RECP	8.6		6.3	1.3		0	1.0
CAUS-RECP	1.1		0	2.5	0.0		0
APPL-RECP	0		–	0	2.4	0	
PASS-ANTC	8.6	3.7			7.3	0.6	–
ANTP-ANTC	8.6	3.7		3.8		0	–
CAUS-ANTC	1.1	0		1.3	0		–
APPL-ANTC	–	–		–	–	–	
PASS-ANTP	2.2	0.7	3.8			0	0
CAUS-PASS	1.1	1.5	1.3		0		2.0
APPL-PASS	0	0	–		0	1.2	
CAUS-ANTP	0	0	0	0			0
APPL-ANTP	0	0.7	–	0		0	
CAUS-APPL	0	0	–	2.5	0		

6.3.4 By macroarea

Table 31 on the next page shows the distribution of simplex voice syncretism among the languages of the language sample according to pattern and macroarea. The patterns in the table are listed according to their overall frequencies in the sample (cf. tab. 26 p. 190).

Table 31. Voice syncretism according to simplex pattern and macroarea

	#						%						
	AF	EA	AU	PN	NA	SA	AF	EA	AU	PN	NA	SA	
REFL-RECP	3	7	9	3	11	16	7.7	17.1	42.9	6.3	30.6	43.2	I
REFL-ANTC	4	8	6	3	6	6	10.3	19.5	28.6	6.3	16.7	16.2	
RECP-ANTC	4	5	2	2	5	4	10.3	12.2	9.5	4.2	13.9	10.8	
CAUS-APPL	4	4	2	2	5	3	10.3	9.8	9.5	4.2	13.9	8.1	
PASS-REFL	4	4	2	0	3	6	10.3	9.8	9.5	0	8.3	16.2	II
PASS-ANTC	5	6	1	0	3	2	12.8	14.6	4.8	0	8.3	5.4	
PASS-RECP	4	4	0	0	2	5	10.3	9.8	0	0	5.6	13.5	
CAUS-PASS	5	4	0	0	3	2	12.8	9.8	0	0	8.3	5.4	
ANTP-RECP	1	3	2	0	3	2	2.6	7.3	9.5	0	8.3	5.4	
ANTP-REFL	0	3	2	1	2	2	0	7.3	9.5	2.1	5.6	5.4	III
ANTP-ANTC	1	3	1	1	2	2	2.6	7.3	4.8	2.1	5.6	5.4	
APPL-RECP	2	1	0	1	3	1	5.1	2.4	0	2.1	8.3	2.7	
CAUS-ANTC	0	4	0	0	1	0	0	9.8	0	0	2.8	0	
PASS-ANTP	0	2	0	0	1	1	0	4.9	0	0	2.8	2.7	
CAUS-RECP	2	0	0	1	0	1	5.1	0	0	2.1	0	2.7	
APPL-PASS	0	1	0	0	1	2	0	2.4	0	0	2.8	5.4	IV
APPL-ANTP	0	1	0	0	1	0	0	2.4	0	0	2.8	0	
CAUS-ANTP	1	0	0	1	0	0	2.6	0	0	2.1	0	0	
CAUS-REFL	1	1	0	0	0	0	2.6	2.4	0	0	0	0	
APPL-REFL	0	0	0	0	1	0	0	0	0	0	2.8	0	
APPL-ANTC	0	0	0	0	0	0	0	0	0	0	0	0	V

As seen in the table there are considerable differences in the attestations of the various patterns of syncretism across the world. For instance, voice syncretism is noticeably more rare among languages of Papunesia than of other macroareas, and only nine patterns of voice syncretism have been attested in the said area. The same number of patterns has been attested in Australia, but in this area there is a high prevalence of reflexive-reciprocal and reflexive-anticausative syncretism (i.e. 42.9 and 28.6 percent, respectively); in fact, the prevalence of reflexive-reciprocal syncretism in Australia is only matched by South America (i.e. 43.2 percent). By contrast, between thirteen to sixteen patterns of simplex voice syncretism have been attested in the remaining macroareas (Africa, Eurasia, North, and South America). Interestingly, only five patterns have been attested worldwide (i.e. reflexive-reciprocal, reflexive-anticausative, reciprocal-anticausative, causative-applicative, and antipassive-anticausative syncretism). However, it is worth noting that several other patterns are attested in five of six macroareas, and the lack of attestations from certain macroareas can very well be the result of random chance. It is difficult to draw any conclusions based on the low figures in the lower parts of the table, but it can be noted that Africa, Eurasia, North, and South America are rather similar in terms of the

attestations of the patterns in the upper middle part of the table (II). Furthermore, it can be observed that reflexive-reciprocal and reflexive-anticausative syncretism are less common in Africa than in the three other aforementioned macroareas. Reflexive-reciprocal syncretism is otherwise a well-known phenomenon in Africa with regard to periphrastic marking of various kinds (e.g. Heine 2000).

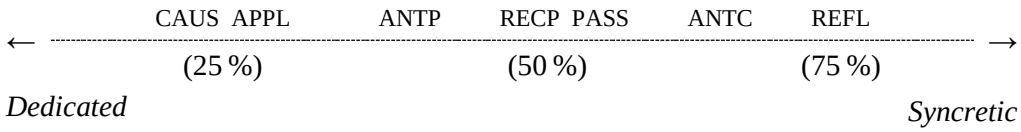
In analogy with table 31 on the previous page, table 32 below shows the distribution of complex voice syncretism in the languages of the language sample according to pattern and macroarea. The attestations for most of the patterns are expectedly low considering the general low prevalence of complex voice syncretism cross-linguistically (cf. tab. 28 p. 193). Consequently, it is difficult to make any broad generalisations about the geographical distribution of the said syncretism, though it might be worth mentioning that the only pattern of complex voice syncretism attested in all macroareas is reflexive-reciprocal-anticausative syncretism. Passive-reflexive-anticausative and antipassive-reflexive-anticausative syncretism are also widespread geographically, while other patterns only pop up sporadically.

Table 32. Voice syncretism according to complex pattern and macroarea

	#						%					
	AF	EA	AU	PN	NA	SA	AF	EA	AU	PN	NA	SA
REFL-RECP-ANTC	1	4	2	2	5	4	2.6	9.8	9.5	4.2	13.9	10.8
PASS-REFL-RECP	1	2	0	0	2	4	2.6	4.9	0	0	5.6	10.8
PASS-REFL-ANTC	1	4	1	0	1	1	2.6	9.8	4.8	0	2.8	2.7
ANTP-REFL-ANTC	0	3	1	1	2	1	0	7.3	4.8	2.1	5.6	2.7
ANTP-REFL-RECP	0	2	2	0	2	2	0	4.9	9.5	0	5.6	5.4
PASS-RECP-ANTC	1	3	0	0	1	0	2.6	7.3	0	0	2.8	0
ANTP-RECP-ANTC	0	2	0	0	2	1	0	4.9	0	0	5.6	2.7
PASS-ANTP-ANTC	0	2	0	0	0	1	0	4.9	0	0	0	2.7
PASS-ANTP-REFL	0	2	0	0	0	0	0	4.9	0	0	0	0
CAUS-APPL-PASS	0	0	0	0	1	1	0	0	0	0	2.8	2.7
CAUS-PASS-RECP	1	0	0	0	0	1	2.6	0	0	0	0	2.7
CAUS-PASS-REFL	1	0	0	0	0	0	2.6	0	0	0	0	0
CAUS-PASS-ANTC	0	1	0	0	0	0	0	2.4	0	0	0	0
CAUS-REFL-RECP	1	0	0	0	0	0	2.6	0	0	0	0	0
PASS-ANTP-RECP	0	1	0	0	0	0	0	2.4	0	0	0	0
APPL-ANTP-RECP	0	0	0	0	1	0	0	0	0	0	2.8	0
CAUS-REFL-ANTC	0	1	0	0	0	0	0	2.4	0	0	0	0
ANTP-REFL-RECP-ANTC	0	2	0	0	2	1	0	4.9	0	0	5.6	2.7
PASS-REFL-RECP-ANTC	0	2	0	0	1	0	0	4.9	0	0	2.8	0
PASS-ANTP-REFL-ANTC	0	2	0	0	0	0	0	4.9	0	0	0	0
CAUS-PASS-REFL-RECP	1	0	0	0	0	0	2.6	0	0	0	0	0
PASS-ANTP-REFL-RECP	0	1	0	0	0	0	0	2.4	0	0	0	0
PASS-ANTP-RECP-ANTC	0	1	0	0	0	0	0	2.4	0	0	0	0
PASS-ANTP-REFL-RECP-ANTC	0	1	0	0	0	0	0	2.4	0	0	0	0

6.4 Summary

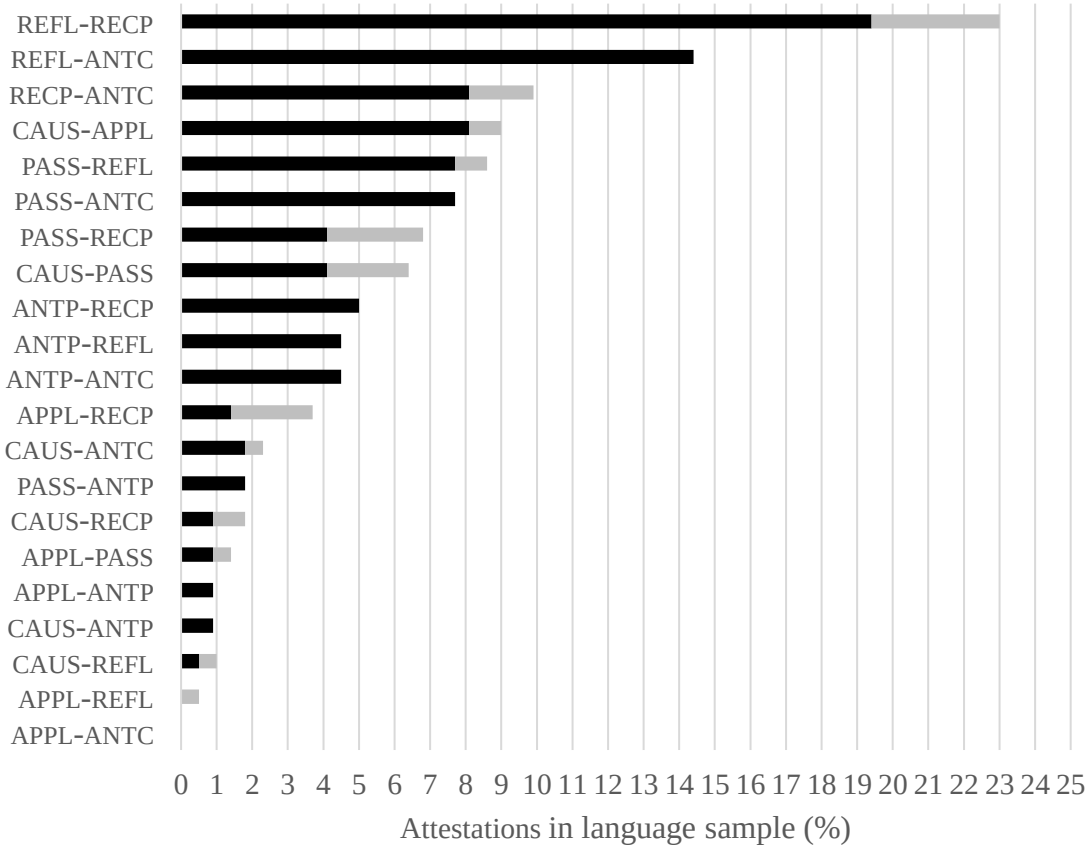
This chapter has shown that 46.8 percent of the languages in the language sample of the present study features at least one pattern of voice syncretism. Voice syncretism is thus attested in 104 languages and thereby 104 genera (cf. tab. 14. p. 179). The vast majority of these attestations represent type 1 syncretism involving full resemblance in voice marking (87.5 percent), though it is worth noting that one fourth of the languages also feature type 2 syncretism involving some degree of partial resemblance (cf. tab. 22 p. 185). This suggests that type 2 voice syncretism is cross-linguistically more frequent than hitherto acknowledged in the literature. Moreover, it was demonstrated that reflexive voice marking is more likely to be syncretic than voice marking found in other voices (cf. tab. 24 p. 187). As noted in §6.3.1, this indicates that the traditional attention on the reflexive voice in discussions of voice syncretism is not unjustified from a purely distributional perspective (cf. Kemmer 1993). By contrast, the causative and applicative voices are rarely syncretic which is not surprising in light of the discussions in the preceding chapters where it has been shown repeatedly that individual patterns of syncretism involving these voices are infrequent. The scale below shows the likelihood of voice marking being syncretic according to voice. The more likely the voice marking in a particular voice is to be syncretic, the further to the right on the scale it is located; and the less likely it is to be so, the further to the left. As seen on this scale, voices associated with middle syncretism clump together on the right side of the scale (50 to 75.3 percent syncretism), the causative and applicative voices on the left side (23.5 to 27.5 percent syncretism), and the antipassive voice is located in between (41.5 percent syncretism).



Furthermore, it was demonstrated that if voice marking in the causative or applicative voice is syncretic, it is normally only syncretic with the voice marking of one other voice (19.8 and 23.5 percent of attestations, respectively), and only very rarely with voice marking in more than two voices (3.7 and 3.9 percent; cf. tab. 25 p.

188). By contrast, more than one fifth of the voice marking attested in each of the other voices is syncretic with more than one voice. This indicates that the causative and applicative voices are less prone to be involved in complex voice syncretism compared to the other voices, reflecting the findings of the previous chapter.

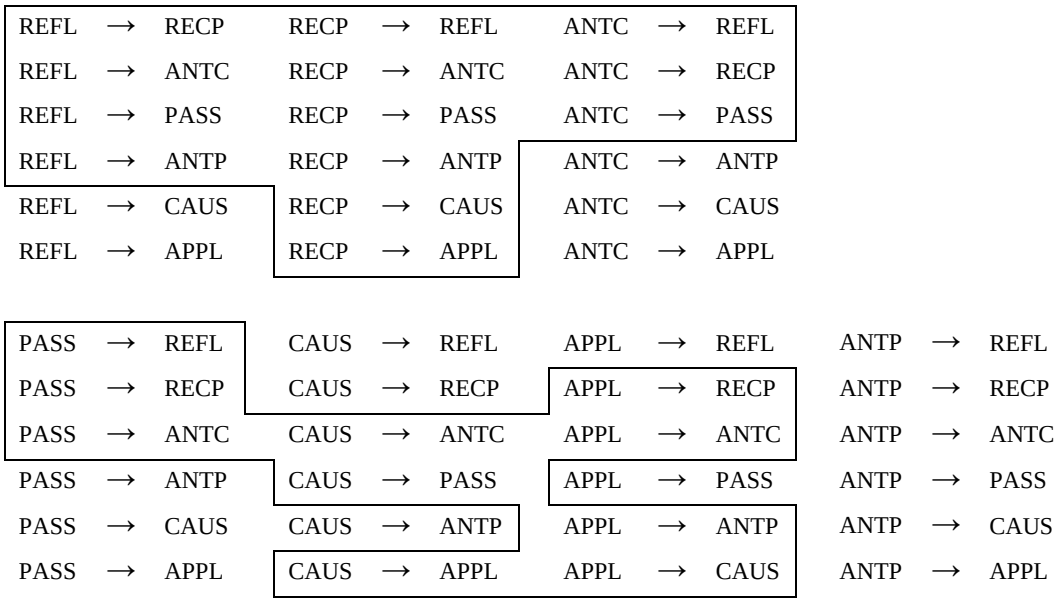
It has also been shown in this chapter that patterns pertaining to middle syncretism are statistically more prevalent cross-linguistically than other patterns, as long suspected in the literature (cf. tab. 26 p. 190). The most common pattern by far is reflexive-reciprocal syncretism followed by reflexive-anticausative and reciprocal-anticausative syncretism. Interestingly, it was demonstrated that causative-applicative syncretism follows these patterns in terms of frequency, making it cross-linguistically more common than all patterns of simplex voice syncretism involving the passive voice. Other comparatively frequent patterns not associated with middle syncretism include causative-passive syncretism and patterns of antipassive syncretism. All other remaining patterns have been attested in only a handful of languages or less. The frequencies of simplex patterns are summarised and visualised in the diagram below; dark colour indicates type 1 syncretism and light colour type 2 syncretism.



As clearly shown in the diagram on the previous page, the attestations of most patterns of voice syncretism are marginal, and it is consequently difficult to make broad generalisations in terms of geographical distribution and tendencies. However, it was observed that voice syncretism in general is notably more rare among languages of Papunesia than among languages of other parts of the world (cf. tab. 31 p. 197). Moreover, only nine different patterns of simplex voice syncretism are attested in the aforementioned macroarea as well as in Australia. By comparison, between thirteen and sixteen patterns are attested in languages of the other four macroareas. Thus, it seems that the highest diversity in voice syncretism can be found in Africa, Eurasia, North, and South America. Only six patterns of voice syncretism are attested in all macroareas: reflexive-reciprocal, reflexive-anticausative, reciprocal-anticausative, reflexive-reciprocal-anticausative, antipassive-anticausative, and causative-applicative.

7 Diachrony of voice syncretism

Voice syncretism has been described mainly in synchronic terms in the preceding chapters, though a few brief diachronic comments have been provided sporadically. In turn, this chapter investigates the diachronic development of voice syncretism and explanations thereof in a more systematic manner. The chapter focuses more specifically on cases of syncretic voice marking for which it can be plausibly demonstrated that one voice function evolved prior to other voice functions. In other words, the topic of interest is here the direction in which the voice functions of such marking evolve; for instance, whether reflexive-reciprocal syncretism in a given language has a reflexive or reciprocal origin. If it is assumed that voice marking in each of the seven voices of interest in the present study (i.e. passive, reflexive, reciprocal, anticausative, antipassive, causative, applicative) can hypothetically develop one of the other six voice functions, 42 directional paths of voice development can logically be posited, as visualised below. Nevertheless, there is currently no evidence for most of these paths of developments, for which reason only paths with some evidence are discussed in this chapter; these patterns are marked by borders in the visualisation.



A reflexive origin for voice syncretism is discussed in §7.1, a reciprocal origin in §7.2, a anticausative origin in §7.3, a passive origin in §7.4, a causative origin in §7.5, and an applicative origin in §7.6. Note that an antipassive origin for voice syncretism has hitherto not been attested. To keep the scope of this chapter restricted, other hypothetical diachronic scenarios of voice syncretism are largely ignored, including, e.g., coincidental convergence. For an example of this phenomenon, see the discussion of applicative-reciprocal syncretism in the language isolate Yuchi (NA) in §4.4.4. Cases of syncretic voice marking for which an ultimate non-voice origin can plausibly be identified, but the chronology of its voice functions cannot, are likewise ignored. For an example of this phenomenon, see Creissels' (2014) discussion of the Western Mande language Soninke (AF) in which causative-antipassive voice marking possibly relates to the verb 'to do,' yet "we will probably never be able to reconstruct the details of the constructions" (id: 18).

While certain paths of development have received considerably more attention in the literature than others, it is worth noting that there is not necessarily more diachronic linguistic evidence for such paths. In fact, as will become evident in this chapter, the general lack of historical and comparative data for the vast majority of the world's languages and genera makes it difficult to find concrete evidence for any given path of development. Consequently, data from historically well-attested languages (most notably Indo-European languages) is often recycled in the literature, and it is not uncommon that paths of development observed in such languages are presupposed for languages with little available historical and/or comparative data. For the sake of diversity, Indo-European languages receive only little attention in this chapter, while discussions of other language families and genera predominate.

Furthermore, a strict distinction is maintained between synchronic observation and diachronic development, meaning that the synchronic attestation of a pattern of syncretism is not automatically linked to any diachronic process. It is only deemed plausible that a given voice development has taken place in a particular language if genus- or family-internal comparative reconstructions and/or historical data provide evidence for the development in question. The diachronic development of voice syncretism in a given language is otherwise considered unresolved for the time being, and the ultimate origin of the said syncretism regarded as uncertain. Evidence based

solely on the language-individual synchronic distributional frequency or productivity of voice functions is accordingly approached with caution, as such evidence cannot necessarily account for functional loss. Illustratively, as described in the next section, the passive-reciprocal-anticausative suffix *-s* in the Germanic language Danish (EA) has a reflexive diachronic origin, but retains no reflexive function synchronically.

Finally, observe that descriptions of diachronic development "from" a voice "to" another voice in this chapter do *not* imply that voice marking loses one voice function in favour of another voice function. On the contrary, as discussed above, the focus of this chapter is the origins of voice syncretism which entails that both functions of the said voice marking remain productive synchronically. Thus, descriptions of the sort mentioned above simply serve as a convenient way of expressing that the voice marking found in one voice comes to be used as voice marking in another voice as well; or, in other words, voice marking with one voice function develops an additional voice function.

7.1 Reflexive origin

Voice syncretism of reflexive origin is probably the best known and most extensively discussed voice diachrony in the literature (Haspelmath 1990, 2003; Kemmer 1993, Heine 2000; Heine & Kuteva 2002; Heine & Miyashita 2008; Maslova 2008; Janic 2010; Sansò 2017, 2018; i.a.). Most notably, due to the long written tradition of Indo-European languages and centuries of comparative research, it is well known that the Proto-Indo-European reflexive pronoun **s(u)e* (Kulikov 2010: 397; 2013: 276) has grammaticalised into a reflexive affix in many descendant languages which has later developed reciprocal, anticausative, and passive functions. This development is illustrated in figure 3 below by examples from the Germanic language Danish, the Romance language Spanish, and the Slavic language Russian (all EA). In certain Indo-European languages the affix has even developed an antipassive function, notably in Russian (§5.4), but also in, e.g., certain dialects of Danish (e.g. *bid-s* 'to bite [sb.];' Berkov 1985: 62 via Nedjalkov 2007d: 297) and standard Swedish (cf. *bit-s* with the same meaning as the Danish cognate). In Russian this function is almost as common as the reciprocal function (Knjazev 2007: 681) while it is marginal and/or fossilised in Danish and Swedish. Moreover, note that the suffix *-s* in Danish has lost its reflexive

function and its anticausative function has become almost obsolete, like in other Scandinavian languages, but both functions were present in earlier stages of the languages (cf., e.g., Old Norse *verja-sk* 'to protect self;' Ottosson 2008: 203). Note also that the Spanish suffix *-se* only is used with infinitive, gerundive and imperative verbal forms (e.g. *alegrándo-se* 'being happy,' *alégre-se* 'be happy'), while the particle *se* is used elsewhere (e.g. *se alegra* 's/he is happy').

Figure 3. Voice syncretism of reflexive origin in Indo-European

PIE	**s(u)e*				
	↓	REFL →	RECP	ANTC	PASS
Danish	*-s*	—	*se-s*	*glæde-s*	*bygge-s*
Spanish	*-se*	*defender-se*	*ver-se*	*alegrar-se*	*construir-se*
Russian	*-sja*	*zaščiščat'-sja*	*videt'-sja*	*radovat'-sja*	*stroit'-sja*
		'to protect self'	'to see e.o.'	'to be happy'	'to be built [by sb.]'

Owing in large part to observations from Indo-European languages, the development of passive, reciprocal, and anticausative functions from a reflexive function is widely believed to be unidirectional and follow certain paths of development. For instance, Heine & Miyashita (2008: 216) argue that "reflexives may grammaticalize into reciprocals, whereas reciprocals do not seem to grammaticalize into reflexives," and Kazenin (2001b: 921) states that "[i]t has been shown that the development always goes unidirectionally from reflexive to passive (via anticausative […])." The latter development has famously been elaborated and visualised by Haspelmath (1990, 2003), who argues that "grammatical morphemes can only acquire new meanings from left to right" in figure 4 below. There is undoubtedly good evidence for these diachronic scenarios, and additional evidence will be provided in the following sections, yet the unidirectionality thereof is not acknowledged in the present study. As demonstrated later in the chapter, there is growing evidence for reverse or opposite developments as well.

Figure 4. Unidirectional voice development (Haspelmath 2003)

Reflexive	→	Grooming and motion	→	Anticausative	→	Potential passive	→	Passive

As already mentioned in the beginning of this chapter, data from Indo-European languages is often recycled in the literature on voice diachrony of reflexive origin due to a general lack of historical and comparative data for most other language families and genera. Consequently, the chronological order in which different functions of voice marking evolve in a given language often remains obscure. Moreover, as remarked by Kemmer (1993: 197), voice markers can be "so grammaticalized in all their occurrences across a particular family that no diachronically prior function can be stated with confidence." In fact, clear examples of voice syncretism of reflexive origin in languages outside the Indo-European language family can be rather difficult to find, but various potential candidates are presented and discussed in the following sections.

7.1.1 From reflexive to reciprocal

Voice development from reflexive to reciprocal has been discussed extensively in the literature, particularly in relation to non-affixal periphrastic reflexive and reciprocal constructions (Heine 2000; Heine & Kuteva 2002: 254; Heine & Miyashita 2008; Maslova 2008; i. a.). By contrast, evidence for verbal reflexive-reciprocal syncretism of reflexive origin is surprisingly scarce, though some clear cases of such syncretism have been reported in the literature. Most notably, as already described in the previous section, the Proto-Indo-European reflexive pronoun **s(u)e* (Kulikov 2010: 397; 2013: 276) has grammaticalised into a reflexive affix and developed a reciprocal function in languages of several Indo-European genera.

Reflexive-reciprocal syncretism of reflexive origin has also been noted occasionally for the Nilotic genus of Africa in which the Proto-Nilotic noun **ri* 'body' has grammaticalised into a reflexive suffix and developed a reciprocal function in some descendant languages (Kemmer 1993: 193ff.; Heine & Miyashita 2008: 191f.). This development is illustrated by examples from Luo and Lango in figure 5 below (Tucker 1994: 159 on Luo; Noonan 1992: 101 on Lango). Haspelmath (1990: 44) observes a very similar development in the Biu-Mandara language Bura in which the reflexive-reciprocal-anticausative suffix *-dzî* is related to the noun *dzá* 'body.'

Figure 5. Reflexive-reciprocal syncretism of reflexive origin in Nilotic

Proto-Nilotic	**ri* 'body'				
	↓		REFL	→	RECP
Luo	*-rê*	*lwóko-rê*	'to wash self'		'to wash e.o.'
Lango	*-(ér)ê*	*câŋ-érê*	'to heal self'		'to heal e.o.'

Culy & Fagan (2001) argue for reflexive-reciprocal syncretism of reflexive origin among languages of another African genus, Dogon. Three languages of this genus appear to possess cognates of the same suffix: Donno So *-e/-i/u*, Tommo So *-i/-e*, and Toro So *-ie*. Culy & Fagan reconstruct the suffix **-ie* for their ancestral language (here called Proto-So for the sake of convenience) and argue that its original function likely was reflexive based on the fact that this function is attested for each of the abovementioned languages. Reflexes of this suffix in Donno So and Tommo So – but not in Toro So – can also serve as voice marking in the reciprocal voice, a function which Culy & Fagan consider a later development. This development is illustrated in figure 6 below (id.: 181f., 188). Nevertheless, note that it can alternatively be hypothesised that the Proto-So suffix **-ie* was characterised by reflexive-reciprocal syncretism and the reciprocal function was lost in Toro So.

Figure 6. Reflexive-reciprocal syncretism of reflexive origin in Dogon

Proto-So	**-ie*					
	↓	REFL		→	RECP	
Donno So	*-e/-i/-u*	*yab-ɛ*	'to save self'		*tamb-ɛ*	'to kick e.o.'
Tommo So	*-i/-e*	*jɔŋ-i*	'to heal self'		*bɛ-i*	'to hit e.o.'

Heine (2000) argues for a general unidirectional development from reflexive to reciprocal among languages in Africa based on a survey of 62 languages spoken on the said continent. Nevertheless, while there are good grounds for postulating such development for non-affixal periphrastic reflexive and reciprocal constructions on the basis of Heine's survey, the scenario cannot automatically be extended to affixal reflexive-reciprocal syncretism. Heine's sample includes only six languages featuring an affix serving as voice marking in both the reflexive and reciprocal voices (id.: 20ff.), three of which belong to the Nilotic genus already discussed above (i.e. Luo,

Acholi, Kalenjin). The remaining three languages are the Bantu language Kisi, and the Central Sudanic languages Lese and Mangbetu, yet the authors of the sources cited by Heine for these languages do not mention nor provide any evidence for a voice development from reflexive to reciprocal (cf. Childs 1995 on Kisi, Vorbichler 1965 on Lese, and Larochette 1958 on Mangbetu). However, note that reflexive-reciprocal syncretism of reflexive origin can be observed in Bantu language of the language sample in the present study, Namibian Fwe, in which the reflexive prefix *rí-* has developed a reciprocal function, while the historical reciprocal suffix *-an* (cf. Proto-Bantu **-an*) has become almost obsolete (Gunnink 2018: 257ff., 270f.). Moreover, it can be mentioned here that Heine & Miyashita (2008) briefly address the reflexive-reciprocal suffix *-veñine* in the Edoid language Degema, albeit not directly in relation to its diachrony. In any case, there does not seem to be any diachronic data on the precise origin of this suffix nor its functions (cf. Kari 2004).

It seems that there are few attested cases of reflexive-reciprocal syncretism of reflexive origin outside of Eurasia and Africa in the typological literature, and examples from Indo-European tend to be recycled. Illustratively, oft-cited Heine & Kuteva (2002: 254) and Maslova (2008: 233ff.) only provide examples from Russian. Heine & Miyashita (2008) do not provide any concrete examples of such syncretism outside of Eurasia and Africa either, although they mention reflexive-reciprocal syncretism characterised by the suffix *-v* in the Yuman language Hualapai (NA) and by the suffix *-inydji* in the Western Pama-Nyungan language Djinang (AU) in their general discussion of the relationship between reflexivity and reciprocity. However, there does not seem to be any evidence for the diachronic development of the functions of the Hualapai prefix (Watahomigie et al. 1982, J.-S. Sohn 1995, Ichihashi-Nakayama et al. 1997), and Waters (1989: 149) argues that the reciprocal – not the reflexive – function "was probably the proto-function" of the Djinang suffix (cf. Heine & Miyashita 2008: 199f.; §7.2.1). Thompson (1996) argues that the reciprocal function of the so-called *d*-classifier found throughout the Na-Dene language family (cf. Proto-Na-Dene **də-*) has evolved from a reflexive function (vid., e.g., id.: 375). Nevertheless, the reflexive and reciprocal functions are both attested throughout the said language family, for which reason an alternative origin for the reflexive-reciprocal syncretism in these languages cannot be automatically rejected.

Despite reflexive-reciprocal syncretism being the most common kind of voice syncretism among the languages in the language sample of the present study (§6.3.1), a reflexive origin can only be established with some certainty for a small number of the said languages. For instance, as described and illustrated in §5.1, the prefix *hup-* in the Nadahup language Hup (SA) serves as voice marking in the passive, reflexive, and reciprocal voices. Epps (2008) argues that the said prefix ultimately derives from the noun *hup* 'human, person' (id.: 474) which has the cognate *xup* 'body' in the related language Dâw (id.: 486). Likewise, in the Yuman language Jamul Tiipay (NA) the reflexive-reciprocal prefix *mat-* is derived from the noun *maat* 'body' (A. Miller 2001: 167); the prefix also has an anticausative function as described in the next section. Hup and Jamul Tiipay are likely to have undergone a development similar to that described for the Nilotic languages in the beginning of this section (cf. fig. 5). Furthermore, as also noted in §5.1, the prefix *mo-* in the Uto-Aztecan language Huasteca Nahuatl (NA) serves as voice marking in the passive, reflexive, reciprocal, and anticausative voices. This prefix can be traced to Proto-Uto-Aztecan **mo-* for which Langacker (1976) reconstructs a reflexive function (see also Anderson et al. 1976: 16), suggesting that the reciprocal and other functions represent later developments. Similarly, in the Tupi-Guaraní language Emerillon (SA) reflexive-reciprocal syncretism is characterised by the prefix *ze-* (Rose 2003: 348ff.), a reflex of the Proto-Tupi-Guaraní reflexive prefix **je-* which historically stood in contrast to reciprocal **jo-* (Jensen 1998: 534f.). The developments in these four languages are illustrated in figure 7 (Epps 2008: 479, 486 on Hup; A. Miller 2001: 166f. on Jamul Tiipay; Llanes et al. 2017: 90 on Huasteca Nahuatl; Rose 2003: 349f. on Emerillon).

Figure 7. Reflexive-reciprocal syncretism of reflexive origin in the Americas

	REFL	→	RECP
Hup	*hup-kɨ́t-* 'to cut self'		*hup-nɔʔ-* 'to give e.o. sth.'
Jamul Tiipay	*mat-aaxway* 'to kill self'		*mat-tetekyuut* 'to greet e.o.'
Huasteca Nahuatl	*mo-ilpi-* 'to tie self'		*mo-ita-* 'to see e.o.'
Emerillon	*-ze-kusug* 'to wash self'		*-ze-potal* 'to love e.o.'

As discussed in more detail later in §7.2.1, it has been noted in the literature that several Australian genera feature what seem to be cognates of an ancestral reflexive proto-suffix *-*yi*. If this reconstruction is accepted, the suffix appears to have developed a reciprocal function among, e.g., Worrorran and Mangrida languages (Alpher et al. 2003: 341ff.; Green 2003: 388). The only potential evidence for reflexive-reciprocal syncretism of reflexive origin among Papunesian languages in the sample of the present study can be found in the North Halmaheran language Ternate (PN) in which the reflexive prefix *ma-* and the reciprocal prefix *maku-* bear some resemblance (i.e. type 2 syncretism). The related language Tidore features the same marking as Ternate (Nedjalkov 2007d: 244) while another related language, Sahu, features very similar marking (cf. reflexive *ma-*, reciprocal *ma'u-*; Heine & Miyashita 2008: 199). However, although the reflexive prefixes are less complex than the reciprocal prefixes, the diachrony of the prefixes and their functions remain obscure. Heine & Miyashita provide three other examples of the phenomenon (id. 198f.) from the Highland East Cushitic language Alaaba (AF; cf. passive *-am*, reciprocal *-akk'-am*; §7.4.2), the Semitic language Amharic (AF; cf. reflexive *tä-*, reciprocal *tä-* plus reduplication), and the Uto-Aztecan language Oklahoma Comanche (cf. passive-reflexive *na-*, reciprocal *nanah-*). Additional examples can be found in §3.2.3. By contrast, compare the reflexive suffix *-l'at* and the reciprocal suffix *-'at* in the South Guaicuruan language Pilagá (SA; Vidal 2001: 171f., 201ff.).

With regard to a functional diachronic explanation for reflexive-reciprocal syncretism of reflexive origin, Heine & Miyashita (2008: 194) propose three plausible "[s]tages in the transition from reflexive to reciprocal" presented in figure 8 below. Heine & Miyashita further specify that "[v]erbs used in Stage-III contexts tend to be referred to by labels such as inherently reciprocal verbs, symmetric predicates, etc., typically including items such as 'chat', 'follow', 'greet', 'kiss', 'marry', 'meet', 'shake hands', etc." (ibid.). As shown in figure 4 in the previous section (vid. p. 205), stage II can involve some kind of grooming or body motion as an intermediary step towards becoming a full-fledged reciprocal; e.g. 's/he washes himself' → 'they wash themselves' → 'they wash each other.'

Figure 8. Evolution of reflexive-reciprocal syncretism of reflexive origin

STAGE I	"There is a grammatical marker (and an associated construction) having a reflexive meaning when used with singular antecedent referents.
STAGE II	When used with multiple antecedents, the marker may receive a reciprocal meaning in addition – the result being ambiguity.
STAGE III	When used with multiple antecedents in specific contexts (e.g., with symmetric predicates), reciprocal is the only meaning."

(Heine & Miyashita 2008: 194)

Heine & Miyashita (2008: 194) regard the development in figure 8 as unidirectional, yet it is worth observing that the opposite development appears to have taken place in several geographically diverse languages, as further discussed in §7.2.1. Thus, in the present study reflexivity is considered but one possible origin of reflexive-reciprocal syncretism.

7.1.2 From reflexive to anticausative

Voice development from reflexive to anticausative is commonly discussed in relation to its role as an intermediary stage in the development from reflexive to passive, as already shown in §7.1 (cf. fig. 4 p. 205) and further discussed in the next section. Such development is often exemplified by data from Indo-European languages, yet examples of the phenomenon can be found sporadically in other genera as well. For instance, as described by Haspelmath (1990: 44), reflexive-anticausative syncretism in the language isolate Nivkh (EA) is characterised by the prefix *pʰ-* derived from the reflexive pronoun *pʰi* (see also Nedjalkov & Otaina 1981: 191f.; 2013: 108f.; Nedjalkov et al. 1995). In the Gunwinyguan language Nunggubuyu (AU) the aforementioned syncretism is characterised by the suffix *-i* which descends from the Proto-Gunwinyguan reflexive suffix **-yi* (§7.2.1). Likewise, in the Central Arawakan language Paresi-Haliti (SA) the reflexive-anticausative suffix *-oa* can be traced back to the Proto-Arawakan reflexive suffix **-wa* (Wise 1990: 109f.); while the anticausative function of prefix *mo-* in the Uto-Aztecan language Huasteca Nahuatl (NA) mentioned in the previous section probably evolved from an original reflexive function (cf. Proto-Uto-Aztecan reflexive **mo-*; Langacker 1976). Furthermore, as also briefly mentioned

in the previous section, in the Yuman language Jamul Tiipay (NA) the reflexive-reciprocal prefix *mat-* derived from the noun *maat* 'body' also has a marginal anticausative function and thus appears to have undergone a development similar to that discussed for Nivkh above. The developments from reflexive to anticausative in these languages is illustrated in figure 9 below (Nedjalkov et al. 1995: 69 on Nivkh; Heath 1984: 390 on Nunggubuyu; A. Miller 2001: 166f. on Jamul Tiipay; Llanes et al. 2017: 90, 92 on Huasteca Nahuatl; Brandão 2014: 248f., 255).

Figure 9. Reflexive-anticausative syncretism of reflexive origin across the world

	REFL	→	ANTC
Nivkh	*pʰ-χa-* 'to shoot self'		*pʰ-χav-* 'to get hot'
Nunggubuyu	*balh-i-* 'to cut self up'		*ⁿᵍaŋ̲d̲-i-* 'to sink'
Jamul Tiipay	*mat-sxwan* 'to scratch self'		*mat-uunall* 'to get lost'
Huasteca Nahuatl	*mo-ilpi-* 'to tie self'		*mo-kweso-* 'to get sad'
Paresi-Haliti	*airikoty-oa* 'to cut self'		*txiholaty-oa* 'to open'

In addition to Eurasia, Australia, and the Americas, reflexive-anticausative syncretism of reflexive origin has also been attested in Africa. Illustratively, as mentioned in the previous section, in the Biu-Mandara language Bura the suffix *-dzî* related to the noun *dzá* 'body' is not only used in the reflexive and reciprocal voices, but also an anticausative function (Haspelmath 1990: 44). In contrast, it has not been possible to find any examples of reflexive-anticausative syncretism of reflexive origin among Papunesian languages. In the language sample of the present study only three Papunesian languages feature reflexive-anticausative syncretism; in the North Halmaheran language Ternate characterised by the prefix *ma-* (Hayami-Allen 2001), in the Torricelli language Yeri characterised by the prefix *d-* (Wilson 2017), and in the language isolate Oksapmin characterised by the prefix *t-* (Loughnane 2009). The Ternate and Yeri prefixes also serve as voice marking in the reciprocal voice, while the Oksapmin prefix also has an antipassive function (§5.2.2). However, there is currently little historical and comparative data to shed light on the chronology of the different functions of the prefixes, though Loughnane (2009: 100) very tentatively suggests that the Oksapmin prefix *t-* may be related to reciprocity (which is synchronically marked by the prefix *gos-*).

Voice development from reflexive to anticausative has been explained in terms of semantic bleaching by Haspelmath (1990) who states that "[t]he anticausative use is more general than the reflexive use in that it is not restricted to clauses with an agentive subject, and it is bleached in that the element of self-affecting action is absent" (id.: 45). It can further be argued that the semantic bleaching probably takes place initially among verbs for which an animate semantic participant is conceivable, as reflexivity requires a semantic participant acting upon itself; e.g. 'to stretch (oneself),' 'to sit (oneself) down,' 'to stand (oneself) up.' Verbs of this kind are commonly called autocausative in the literature, yet qualify as anticausative in the present study (§2.2.4). Subsequently, the anticausative function extends to verbs for which an animate semantic participant is inconceivable; e.g. 'to shatter,' 'to split.' Although this diachronic development is generally considered unidirectional (§7.1), Inglese (2019) has recently argued that the opposite development might have taken place in the extinct Indo-European language Hittite, as further discussed in §7.3.1.

7.1.3 From reflexive to passive

Voice development from reflexive to passive has received much attention in the literature and is widely believed to involve an intermediary anticausative stage as noted in §7.1 (vid. fig. 4 p. 205; Haspelmath 1990: 44f.; Kemmer 1993: 197f.; Heine & Kuteva 2002: 253; Zúñiga & Kittilä 2019: 225f.). Illustratively, Heine & Miyashita (2008: 205) argue that "[i]t would seem that there is in fact a universally well-attested evolution from reflexive (via anticausative and related functions) to passive markers." This belief essentially entails two developments: from reflexive to anticausative, and from anticausative to passive. The former development has been discussed in the preceding section, while the latter is discussed in §7.3.3.

However, note that such two-step development may give the false impression that the passive function evolves only from the anticausative function separately from the reflexive function. In fact, voice marking known to have undergone such development generally retains both a reflexive function and an anticausative function at the dawn of the passive function. Thus, it may be more accurate to describe the voice development under discussion in terms of syncretic reflexive-anticausative voice marking developing a passive function. This kind of development has been described

most notably for Indo-European languages, as already noted in §7.1 (cf. fig. 3 p. 205). Another oft-cited case is provided by Heine & Kuteva (2002: 44; 2007: 110ff.) from the Ju-Kung language Western !Xun (AF) in which the noun ǀ*'é* 'body' has undergone a development similar to that attested for Indo-European languages, yet the noun in question has not evolved into an affix for which reason the language is not discussed further here. The same is true for, e.g., Central Sudanic language Ma'di and the noun *rū* 'body' (Heine & Miyashita 2008: 203f.) as well as for the Biu-Mandara language Margi (AF) and the noun *kə́r* 'head' (Haspelmath 1990: 44).

In fact, clear examples of voice development from reflexive-anticausative to passive involving verbal voice marking in non-Indo-European languages are difficult to obtain, as a lack of diachronic data for most languages blurs the chronological order in which the different functions evolve. For instance, Llanes et al. (2017: 102) suggest that the prefix *mo-* in the Uto-Aztecan language Huasteca Nahuatl (NA) already encountered in the preceding two sections "has undergone two fairly widespread pathways of grammaticalization from the original reflexive use: reflexive > reciprocal, and reflexive > middle > impersonal/passive." The reflexive function of the prefix does indeed seem to be the oldest (cf. Proto-Uto-Aztecan reflexive **mo-*; Langacker 1976), but Llanes et al. (2017) provide no evidence for the latter pathway (see §7.1.1 for a discussion of the former). In fact, they admit that "none anticausative use has been documented in the corpus for the prefix *mo-*" (sic; id.: 102).[19] Likewise, as shown in §5.1, the suffix *-yii/-V* in the Tangkic language Kayardild (AU) serves as voice marking in the passive, reflexive, and anticausative voices, and the reflexive function of the suffix is likely to be the oldest (§7.2.1). However, the more precise diachronic development of its other functions remains obscure. A few additional languages in the language sample of the present study feature voice marking shared by the passive, reflexive, and anticausative voices for which there is even less historical and comparative data available, e.g. the Tibeto-Burman language Dhimal (EA) and the language isolate Sandawe (AF). Although a development from reflexive to passive via an anticausative intermediary stage is plausible for all these languages considering the

[19] Note that at least two verbs do actually seem to have an anticausative function with the prefix *mo-* in Huasteca Nahuatl (§5.1), but the function in question is evidently rare.

diachronic developments attested for Indo-European languages, alternative development scenarios cannot automatically be ruled out.

The possibility of a development directly from reflexive to passive without an intermediary anticausative stage has largely been ignored in the literature. Nevertheless, it is worth observing that there are languages in which the reflexive and passive voices are characterised by voice marking for which there appears to be no evidence for an anticausative function (nor traces thereof). For example, McFarland (2009: 188) argues that "all verb forms in *-kan*" in the Totonacan language Filomeno Mata Totonac (NA) can represent a reflexive or passive voice depending on context, while the suffix in question has no attested anticausative function. When a passive reading is intended, the most agent-like semantic participant cannot be expressed syntactically and the passive function is thus more precisely absolute passive (ibid.). Beck (n.d.: 22ff.) observes that the related languages Upper Necaxa Totonac, Coatepec Totonac, Tlachichilco Tepehua, Huehuetla Tepehua, and Pisaflores Tepehua are more or less similar to Filomeno Mata Totonac in this respect. Another very similar example of such reflexive-passive syncretism comes from the Huitotoan language Bora (SA) in which the suffix *-meí* also serves as voice marking in the passive and reflexive voices, but not in the anticausative voice (Thiesen & Weber 2012: 147f.; Seifart 2015: 1499f.). Both the passive and reflexive functions of the prefixes *-kan* and *-meí* are illustrated below in figures 10 and 11, respectively (Beck n.d.: 22ff. on Totonacan languages; Thiesen & Weber 2012: 148 on Bora).

Figure 10. Passive-reflexive syncretism in Totonacan

		REFL	PASS
Filomeno Mata Totonac	*laaqtsin-kan*	'to see self'	'to be seen [by sb.]'
Upper Necaxa Totonac	*lą̀ʔtsín-kan*	'to see self'	'to be seen [by sb.]'
Coatepec Totonac	*paːškiː-kan*	'to love self'	'to be loved [by sb.]'
Pisaflores Tepehua	*mispaa-kan*	'to know self'	'to be known [by sb.]'

Figure 11. Passive-reflexive syncretism in Bora

	REFL	PASS
wáhdáhɨ́nú-meí	'to cut self'	'to be cut [by sb.]'
dsɨjɨvétsá-meí	'to kill self'	'to be killed [by sb.]'

The ultimate origins of the Totonacan suffix *-kan* and the Bora suffix *-meí* remain unknown for the time being, given the currently available data it is clear that there is no indication nor evidence for any anticausative involvement. Observe that the suffix *-kan* also indicates a plural possessor on nouns in Filomeno Mata Totonac, Coatepec Totonac, and Huehuetla Tepehua (Beck n.d.: 32). In Upper Necaxa Totonac and Tlachichilco Tepehua similar but distinct suffixes are employed for this particular function, i.e. *-kɑ̨n* and *-k'an*, respectively (ibid.). Considering the plural possessive function of the nominal suffix *-kan* and the lack of an identifiable agent associated with the verbal suffix *-kan*, the passive function may have developed from a "generalized-subject construction" (Haspelmath 1990: 49f.; called "indefinite subject construction" by Zúñiga & Kittilä 2019: 224f.). This is mere speculation, however, and does not readily explain the reflexive function of the verbal suffix *-kan*. The only non-reflexive and non-passive function of the Bora suffix *-meí* is characterised by an attempt to do something (e.g. *tsájtyé-meí* 'to try to carry sth.,' *éjéhtsó-meí* 'to try to run;' Seifart 2015: 1500) which does not shed much additional light on the origin of its passive and reflexive functions.

Additionally, as illustrated in §5.1 and briefly discussed in §7.1.1, in the Nadahup language Hup (SA) the prefix *hup-* derived from the noun *hup* 'human, person' (cf. the cognate *xup* 'body' in the related language Dâw; Epps 2008: 486) serves as voice marking in the passive, reflexive, and reciprocal voices. By contrast, there is currently no good evidence for any anticausative function of the prefix in question. Epps mentions only one "semi-lexicalized and/or semi-idiomatic" use of the prefix which bears weak resemblance to an anticausative function with a single verb, i.e. *hup-kə́d* 'to turn' or 'to be turned [by sb.]' (id.: 476); cf. *kə́d* 'to pass sth.' (id.: 314), *d'oʔ-kə́d* or *d'oʔ-hup-kə́d* 'to turn sth.' (*d'oʔ-* is a causative marker, lit. 'take;' id.: 518). The available data suggests that the reflexive-passive syncretism in Hup is of reflexive origin, though "further study will shed more light on the processes of grammaticalization that led to the present system" (id.: 487). Alternatively, the passive function of the prefix *hup-* may have developed through a generalized-subject construction (cf. the discussion of the Totonacan languages above) directly from the noun *hup* which also has the more indefinite meaning 'someone' in some contexts (vid., e.g., id.: 479).

Finally, note that Heine & Kuteva (2002: 253) argue that the singular reflexive suffix *-o/-a* and the plural reflexive suffix *-os/-as* in the Nilotic language Ateso (AF) have developed a passive function without mentioning any intermediary anticausative stage. Nevertheless, the authors of the source which Heine & Kuteva cite (i.e. Hilders & Lawrance 1956) provide little evidence for the diachrony of the suffixes, only stating that sometimes the form which they choose to call reflexive "is preferred" to express passivity (id.: 57). In a more recent grammar of the language, Barasa (2017: 175ff.) demonstrates that the suffix *-o/-a* is reciprocal, but does not mention any reflexive function thereof nor the suffix *-os/-as*. The passive voice in the language characterised by the suffix *-oi/-aɪ* (id.: 171ff.) bears resemblance to the aforementioned reciprocal suffix though.

7.1.4 From reflexive to antipassive

Although antipassive-reflexive syncretism is not as well-attested cross-linguistically as the patterns of syncretism discussed in the preceding sections, the diachrony of such syncretism has attracted increasing attention during the last decades. Most notably, a reflexive origin has repeatedly been proposed for the syncretism (Terrill 1997; Janic 2010; Sansò 2017, 2018), while there is currently no evidence for an opposite development from antipassive to reflexive.

Terrill (1997) argues for a reflexive origin of antipassive-reflexive syncretism among languages of Australia based on a survey of twelve languages spoken on the said continent; the Northern Pama-Nyungan languages Guugu Yimidhirr, Kuku-Yalanji, Djabugay, Yidiny, Dyirbal, Nyawaygi, Warrungu, and Kalkatungu, the Central Pama-Nyungan language Diyari, the Southeastern Pama-Nyungan language Bandjalang, and the Gunwinyguan languages Ngandi and Nunggubuyu. Nevertheless, the purported antipassive voices mentioned by Terrill for Kuku-Yalanji and Diyari are not recognised in the present study due to uncertainty about whether or not they comply with the antipassive definitions employed in the present study (§4.2.4). This uncertainty also extends to Guugu Yimidhirr and Nyawaygi. As defined in §2.2.2, an antipassive voice entails one semantic participant that is less likely to be expressed syntactically than other semantic participants (or cannot be syntactically expressed at all) and this semantic participant is not an agent. However, the antipassive voice cited

by Terrill for Guugu Yimidhirr is defined by Haviland (1979) according to case marking alone; by "putting the A NP into S function with the derived verb" and "putting the original O NP into some oblique case;" id.: 128). A similar definition is provided by Dixon (1983) for Nyawaygi; "the underlying A NP of the verb now goes into S function, and the underlying O NP now takes dative or ergative-instrumental inflection" (id.: 496). Moreover, the purported antipassivity in Ngandi is also not acknowledged in the present study due to unproductivity. Heath (1978: 92) argues that the suffix *-i* addressed by Terrill only can have a function which "indicates indefinite or unspecified object" with a single verb in Ngandi (cf. *ḍaː-bu-* 'to test/taste/try sth.' ↔ *ḍaː-b-i-* 'to try [sth.], make an effort;' ibid.).

The antipassive voices cited by Terrill (1997) for the remaining seven languages are acknowledged here, however, and antipassive-reflexive syncretism is acknowledged for six of these languages (cf. Yidiny *-:dji*, Djabugay *-yi*, Dyirbal *-yi* or *-yirri*, Warrungu *-li* or *-gali*, Bandjalang *-li*, Nunggubuyu *-i*). In Kalkatungu the antipassive suffix *-yi* differs from the reflexive suffix *-ti* (at least synchronically), for which reason this language is not discussed further here. In any case, Terrill (1997: 78) ultimately argues that the various suffixes are cognates derived from some ancestral proto-suffix **-dhirri-yi* (Dixon 1980) or **-dharri* (Dixon 2002). This reconstruction is highly tentative, however, and the precise development of its functions are no less certain than the reconstructed form itself (McGregor 2013: 119f.). Nevertheless, as further discussed in §7.2.1, it appears that a reflexive suffix **-yi* can be reconstructed rather reliably for Proto-Gunwinyguan, which points to a reflexive origin of antipassive-reflexive syncretism in Nunggubuyu characterised by the suffix *-i*. This presumed development in Nunggubuyu is illustrated in figure 12 below (Heath 1984: 390).

Figure 12. Antipassive-reflexive syncretism of reflexive origin in Nunggubuyu

Proto-Gunwinyguan	**-yi*					
	↓	REFL		→	ANTP	
Nunggubuyu	*-i*	*n-i-*	'to see self'		*yaḻgiw-i-*	'to pass [sth.]'
		balh-i-	'to cut self up'		*yimunydharm-i-*	'to track [sth.] by smell'

It has not hitherto not been possible to find other examples of similar antipassive-reflexive syncretism in other Gunwinyguan languages. Note that that the suffix *-i* in Nunggubuyu also has an anticausative function (§5.2.2) and the order in which this and the antipassive function evolved is uncertain.

In the spirit of Terrill (1997), Janic (2010) argues that antipassive-reflexive syncretism "developed from reflexivity through functional extension" (id.: 159) on the basis of data from ten geographically diverse language; the Slavic languages Bulgarian and Polish, the Kartvelian language Laz, the Northern Chukotko-Kamchatkan language Chukchi (all four EA), the Cariban language Ye'kwana, the Tacanan languages Cavineña and Ese Ejja (all three SA), the Western Mande language Bambara (AF), and the Northern Pama-Nyungan languages Warrungu and Yidiny (both AU). The latter two languages have already been addressed above, while it was noted in §4.4.3 that the purported antipassive-reflexive syncretism in Laz and Bambara is not acknowledged in the present study due to the lack of verbal voice marking. However, it was mention in the aforementioned section that the said syncretism has been observed by Creissels (2012, 2015) in another Western Mande language though, Soninke, characterised by the suffix *-i*. Creissels also notes that a similar suffix can be found in the closely related Bobo and Bozo languages and that *í* is "attested in several West Mande languages as a reflexive pronoun (id.: 13). Based on these observations, Creissels goes on to reconstruct a reflexive suffix **-i* for Proto-Western-Mande, yet admits that there is "a serious problem with this hypothesis" (ibid.). More specifically, a grammaticalisation of *í* as a suffix would seem to entail an original SVO(X) word order, but "all Mande languages invariably show a rigid SOVX constituent order, which consequently must be reconstructed at Proto-Mande level" (ibid.). While the Western Mande genus remains a potential candidate for antipassive-reflexive syncretism of reflexive origin, Creissels prefers to leave the question open (ibid.) and the same goes for the present study.

The origin of antipassive-reflexive syncretism is also uncertain for the Tacanan and Northern Chukotko-Kamchatkan languages discussed by Janic (2010). Vuillermet (2012: 525) addresses the origin of antipassive-reflexive syncretism among Tacanan languages, remarking that the antipassive-reflexive-reciprocal-anticausative circumfix *xa-…-ki* in Ese Ejja and the antipassive-reflexive-reciprocal circumfix *k(a)-…-ti* in

Cavineña perhaps come "from a primary reflexive function" (cf. the reflexive-reciprocal suffix *-ti* in the closely related language Araona; Emkow 2006: 555ff.). However, more comparative research is needed to clarify and determine the more precise chronology. The antipassive-reflexive syncretism in the Northern Chukotko-Kamchatkan language Chukchi is characterised by the suffix *-tku/-tko*, and Janic (2010: 167) admits that the suffix is "not related to reflexivity but to reciprocity." Interestingly, Fortescue (2005: 423) proposes that the suffix in question descends from Proto-Chukotko-Kamchatkan **-tku* denoting "frequent or protracted action" (cf. frequentative Alutor *-tku*, Koryak *-tku*, and Kerek *-ttu*; ibid.). Thus, there is little evidence for a reflexive origin; by contrast, it is well-known that antipassivity is commonly related to reciprocity (§5.2.2) and aspect (e.g. Polinsky 2017).

Cariban languages seem to be better candidates for antipassive-reflexive syncretism of reflexive origin. As observed by Meira (2000), a "detransitivizing prefix" is "found in every Cariban language" and can have a wide range of uses, including passive, antipassive, reflexive, reciprocal, and anticausative functions (id.: 217ff.). The prefix mentioned by Meira has subsequently been reconstructed for Proto-Carib as two distinct prefixes, **(w)e-* and **(w)ôte-*, which Meira et al. (2010: 512) and Gildea (2015: 9) regard as reflexive and reciprocal, respectively. While seemingly homogeneous in Proto-Carib, at least 25 reflexes of the prefixes are attested among descendant languages many of which feature four or more different variants (Meira et al. 2010: 506). Consider, for instance, Tiriyó *ə-*, *əəs-*, *e-*, *əl-*, *ət-*, *et-*; Wayna *ət-*, *əh-*, *ə-*, *e-*; Kari'ña *(w)ot-*, *os-*, *o(ʔ)-*, *e-*; and Apalaí *ot-*, *os-*, *at-*, *o-*, *e-* (Meira 2000: 217f.). While such variant forms are "mostly phonologically conditioned" (Gildea et al. 2016: 2), they sometimes involve suppletion (ibid.) or "appear to be lexically conditioned" (Meira 2000: 217).

Despite the abovementioned "complicated and idiosyncratic allomorphic patterns" (ibid.), the variant forms are commonly treated as a single prefix synchronically which can make it difficult to determine the patterns of voice syncretism in the languages. Nevertheless, some prefixes do indeed have, e.g., both antipassive and reflexive functions, including *e-* derived from Proto-Carib **(w)e-* (Meira et al. 2010: 511), which points to a reflexive origin of the said syncretism. This presumed development is illustrated by examples from three languages of the genus in figure 13 below (Meira

2000). It is worth observing, however, that the antipassive function of the prefix *e-* seems to be rather widespread among the Cariban languages, and the diachronic development of the various functions of the Proto-Carib prefixes **(w)e-* and **(w)ôte-* remains understudied.

Figure 13. Antipassive-reflexive syncretism of reflexive origin in Cariban

Proto-Carib	**(w)e-*			
	↓	REFL	→	ANTP
Kari'ña	*e-*	*e-kuupi* 'to bathe self'		*e-sapima* 'to play [sth.]'
Tiriyó	*e-*	*e-suka* 'to wash self'		*e-puuka* 'to bewitch [sb.]'
Makushi	*e-*	*e-roma* 'to wash self'		*e-name* 'to fear [sth.]'

Recently, Sansò (2017) has argued for antipassive-reflexive syncretism of reflexive or reciprocal origin in 20 languages representing sixteen different genera,[20] five of which have already been addressed above; Slavic, Northern Pama-Nyungan, Central Pama-Nyungan, Kartvelian, and Tacanan. Sansò explicitly addresses the syncretism in five of the remaining eleven genera (id.: 193ff.), while the last six genera are listed in a table without further comments (id.: 203). In any case, there is only relatively clear evidence for a reflexive origin in one of the five genera explicitly discussed by Sansò, Turkic. Sansò explicitly mentions antipassive-reflexive syncretism characterised by the suffix *-š* in Tatar of reciprocal origin (§5.2.2) and by the suffix *-n* in Tuvan of reflexive origin. As already briefly mentioned in §5.2.1, the suffix *-n* is probably diachronically "connected to the possessive form *an* of the [third person] pronoun *ol*" (Salo 2013: 225) and plausibly grammaticalised into a reflexive suffix which developed an antipassive function. This development is illustrated in

[20] In fact, Sansò (2017) is interested in antipassive diachrony in general, and also mentions three additional languages in which the antipassive diathesis supposedly has a reflexive or reciprocal origin; Gumuz (AF), the Bantu language Eton (AF), and the Oceanic language Chamorro (PN). However, it is unclear if Gumuz features productive verbal antipassive voice marking (only a single example is provided by Ahland 2012: 194f.), and the latter two languages do not feature verbal antipassive-reflexive syncretism.

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figure 14 below (Kuular 2007: 1173 on Tatar; Burbiel 2018: 484f. on Tatar). The other four genera explicitly discussed by Sansò (2017) are addressed below.

Figure 14. Antipassive-reflexive syncretism of reflexive origin in Turkic

Common Turkic	*-*n*			
	↓	REFL	→	ANTP
Tuvan	*-n*	*savaŋna-n-* ‘to soap self’		*daara-n-* ‘to sew [sth.]’
Tatar	*-n*	*sört-en-* ‘to dry self’		*teg-en-* ‘to sew [sth.]’

In contrast to the Turkic case above, Loughnane (2009: 100) tentatively speculates that the antipassive-reflexive-anticausative prefix *t-* in the language isolate Oksapmin (PN) may historically be related to reciprocity, not reflexivity, as briefly mentioned in §7.1.2. In turn, Bryant (1999) does not seem to address the origin of antipassive-reflexive syncretism at all in his grammar of the Eastern Sudanic language Tirmaga (AF). Furthermore, the so-called *d*-classifier characterising antipassive-reflexive syncretism in the Na-Dene language Tlingit (NA) described by Sansò (2017: 193f.) does not seem to have neither a reflexive nor reciprocal origin; the same is true for the related language Eyak also included in Sansò’s study. Thompson (1996) argues that both the antipassive and reflexive functions of the said classifier have evolved independently from a generalised function denoting a “suppressed patient” (id.: 374f.). Finally, the purported reflexive origin mentioned by Sansò (2017) for the antipassive-reflexive suffix *-m* in the Central Salish language Chilliwack Halkomelem (NA) seems to be supported by Zahir (2018: 75ff.). Nevertheless, observe that the suffix has an antipassive function in all the Salishan languages surveyed by Zahir, while its reflexive function is “not prototypical” (id.: 77). The more precise chronology of the functions consequently remains uncertain. It is clear from Zahir’s discussions of the suffix *-m* that he presupposes a reflexive origin and diachronic development à la that famously described by Kemmer (1993) for Indo-European languages (§7.1)

The remaining six languages and accompanying genera included but not explicitly discussed in Sansò’s (2017) study are the Oceanic language Neverver (PN), the Nilotic language Luwo (AF), the Mangarrayi-Maran language Mangarrayi (AU), the Oto-Manguean language San Ildefonso Tultepec Otomí, the Southern Iroquoian language

Cherokee, and the Northern Iroquoian language Seneca (all three NA). As in the case of Tirmaga mentioned further above, Barbour (2012) does not address the diachrony of antipassive-reflexive syncretism in Neverver, and neither does Storch (2014) with regard to Luwo. By contrast, Palancar (2009: 157ff.) explicitly argues against a reflexive origin for the prefix *n-* associated with antipassive, reflexive and other voices in San Ildefonso Tultepec Otomí (compare the cognate prefix in Acazulco Otomí illustrated in §5.2.2). By contrast, there is some vague evidence indicating that the suffix *-(ñ)jiy(i)* in the Mangarrayi-Maran language Mangarrayi (AU) with reflexive, reciprocal and marginal antipassive functions perhaps is historically composed of a reciprocal suffix **-nci* and reflexive suffix **-yi* (§7.2.1).

Moreover, Julian (2010) reconstructs a reflexive prefix **ataːt-* for Proto-Iroquoian which points to a reflexive origin for antipassive-reflexive syncretism characterised by cognates thereof in Cherokee and Seneca. This presumed development is illustrated for the former language in figure 15 below (Montgomery-Anderson 2008: 343, 345, 366, 371), but observe that the development in question is somewhat tentative. Julian does not once address antipassivity nor similar functions of the prefix in descendant languages, and it is therefore not entirely clear if this function has been overlooked in the reconstruction of the Proto-Iroquoian prefix or not.

Figure 15. Antipassive-reflexive syncretism of reflexive origin in Cherokee

Proto-Iroquoian	**ataːt-*			
	↓	REFL	→	ANTP
Cherokee	*ataa(t)-*	*ataa-kohwthíha-* ‘to see self’		*ataa-stehlt-* ‘to help [sb.]’
		ataat-olihka- ‘to recognise self’		*ataat-olihka-* ‘to recognise [sth.]’

In terms of functional explanations for antipassive-reflexive syncretism of reflexive origin, Terrill (1997: 79) argues that “[i]t seems possible that the antipassive constructions developed from reflexive constructions, by extending the pragmatic function of reflexives” because “reflexives and antipassives have very similar semantic/pragmatic functions.” Consequently, “it is a short functional step from a canonical reflexive function to a canonical antipassive function” (ibid.). According to

Terrill both reflexives and antipassives are more specifically characterised by i) low agency, ii) low transitivity, and iii) 'non-distinct' objects (id.: 80ff.). This explanation is largely adopted by Janic (2010: 168f.; see also 2016), while Sansò (2017, 2018) argues against it on the grounds that functional similarity "is an elusive concept if we are not able to figure out a hypothetical context in which there may be ambiguity between the source and the target constructions" (Sansò 2017: 206). In the spirit of Creissels & Nouguier-Voisin (2008) and Bostoen et al. (2015), Sansò (2018) instead hypothesises that "the reinterpretation path leading to the extension of reflexive/reciprocal/middle markers to antipassive situations starts from a very specific bridgehead, namely, reciprocally marked comitative/sociative constructions" (id.: 12). This scenario is visualised in figure 16 below. A development from reflexive to reciprocal would thus entail a development from reflexive to reciprocal (§7.1.1) and from reciprocal to antipassive (§7.2.4).

Figure 16. Antipassive-reflexive syncretism of reflexive origin (Sansò 2018)

A & B hit each other (pure reciprocal)
↳ A & B cooperate in hitting / hit together (sociative/comitative)
↳ A & B hit [sb.] (antipassive, plural agent)
↳ A hits [sb.] (antipassive, singular agent)

Sansò's (2017, 2018) scenario described and visualised below represents a plausible explanation for the rise of antipassive-reflexive syncretism in languages in which the antipassive-reflexive marking also has a reciprocal function. However, it does not explain the development of the said syncretism in languages in which the antipassive-reflexive marking does not have a reciprocal function, like in, e.g., Nunggubuyu and Tatar. For such languages a more general explanation like the one proposed by Terrill (1997) and Janic (2010, 2016) might be a better alternative, if a hypothetical context or scenario in which the development might have taken place can be found. Terrill (1997: 83) mentions in passing that the verb 'to cover' in Yidiny (AU) can be found in both the antipassive and reflexive voices with the same voice marking. If one focuses on the non-distinctiveness characterising reflexives and antipassives mentioned further above, it could be hypothesised that a reflexive meaning of a verb like 'to cover' could come to be used first in relation to a distinct part of the body and

later more vaguely with regard to some non-distinct part of the body whence an antipassive function could evolve; e.g. ‘to cover (all of) oneself’ → ‘to cover distinct part of one’s own body’ → ‘to cover non-distinct part of one’s own body’ → ‘to cover [something non-distinct].’

7.2 Reciprocal origin (and plurality of relations)

As demonstrated in the preceding sections, voice syncretism of reflexive origin is well-known and rather well-attested among the languages of the world. In comparison, the prospect of a reciprocal origin for both individual voices and voice syncretism has received relatively little attention in the literature, although possibility of such development has been acknowledged sporadically for decades (e.g. Kemmer 1993: 200). Nevertheless, growing evidence indicates that a reciprocal origin (or at least a partially reciprocal origin) may be more widespread than previously thought. Plausible cases of such development are discussed and illustrated in the following sections.

It is important to stress here that it can be difficult to discern a *purely* reciprocal origin for voice syncretism in many languages, for which reason a *partially* reciprocal origin is mentioned in parentheses above. Indeed, in many of the languages addressed in the following sections the purported original reciprocal function of a given voice marker likely existed alongside various more or less semantically similar functions related to, e.g., sociativity (‘to VERB together’), iterativity (‘to VERB iteratively’), intensity (‘to VERB intensely’), and/or habituality (‘to VERB habitually’). In the spirit of Lichtenberk (1985, 2000), these functions are subsumed under the notion PLURALITY OF RELATIONS. This notion can further be divided into PLURALITY OF PARTICIPANTS underlying functions in which semantic participants act plurally in one way or another (e.g. sociativity), and PLURALITY OF ACTIONS underlying functions in which an action is performed plurally (e.g. iterativity). The notion of plurality of participants and thereby plurality of relations also underlie reciprocity. Thus, the patterns of voice syncretism addressed in the next sections do not necessarily all have an exclusively reciprocal origin in all languages, but the voice marking in these patterns has a documented or reconstructible reciprocal function which evolved before additional voice functions of interest. For the sake of convenience, the voice syncretism will accordingly be described as having a reciprocal origin.

7.2.1 From reciprocal to reflexive

As noted in §7.1, it is widely believed that reflexive marking can develop a reciprocal function and that reciprocal marking cannot develop a reflexive function; in other words, as argued by Heine & Miyashita (2008: 216), "reciprocals do not seem to grammaticalize into reflexives." A diachronic development from reflexive to reciprocal is indeed well-attested cross-linguistically as demonstrated in §7.1.1, yet the opposite development does also appear to have taken place in a number of geographically diverse languages and genera, as further discussed in this section.

For instance, reflexes of the Proto-Oceanic prefix **paRi-* (Pawley 1973: 150ff.) in descendant Oceanic languages (PN) have a wide range of functions related to the notion plurality of relations discussed in the previous section, including reciprocity (Lichtenberk 2000); for an overview of the various functions, see Bril (2005: 28). In contrast, a reflexive function is rare among the said reflexes, and Lichtenberk (2000: 32) argues that "there are no grounds for postulating a reflexive-marking function" for the prefix **paRi-* in the proto-language (see also 1991: 181); an opinion also shared by, e.g., Bril (2005: 32) and Moyse-Faurie (2008: 106; 2017: 108). Interestingly, however, a reflexive function has evolved as an innovation in a few descendant languages, most notably in "[l]anguages spoken in the Hienghene area (Nemi, Fwâi, Pije, Jawe) of the New Caledonian Mainland, as well as Cèmuhî and at least some of the Voh-Koné dialects (Centre of the Mainland, such as Hmwaveke)" (id.: 122). For example, in the Hmwaveke language mentioned by Moyse-Faurie the prefix *ve-* derived from Proto-Oceanic **paRi-* has an unambiguous reflexive function in the singular, while both reflexive and reciprocal interpretations are possible in the dual and plural.

Moyse-Faurie (2017: 110) argues that the phenomenon described above is otherwise "very rare in Oceanic languages," though it can here be added that the Loyalty Islands language Drehu and the Polynesian language East Futunan appear to have undergone a similar development, albeit on a much smaller scale. In Drehu the prefix *i-* has reciprocal and other functions related to plurality of relations (Bril 2005: 35) as well as an antipassive function (id.: 37f.; §7.2.4) in addition to a reflexive use "with a few verbs of grooming" (ibid.). In East Futunan the prefix *fe-* has functions related to plurality of relations and can also "mark a reciprocal involving no more than

two participants" with "a dozen of verbs" (Moyse-Faurie 2007: 1520), while a reflexive function is "limited to a few verbs designating actions performed on one's own body" (id.: 1522). The prefixes in these languages also represent reflexes of Proto-Oceanic **paRi-*. The presumed diachronic development of reflexive-reciprocal syncretism in these two languages as well as Hmwaveke is illustrated in figure 17 below (Moyse-Faurie 2008: 123 on Hmwaveke; Bril 2005: 35, 38 on Drehu; Moyse-Faurie 2007: 1520ff. on East Futunan).

Figure 17. Reflexive-reciprocal syncretism of reciprocal origin in Oceanic

Proto-Oceanic	**paRi-*			
	↓	RECP (+ plurality of relations)	→	REFL
Hmwaveke	*ve-*	*ve-caina* 'to know e.o.'		*ve-ibi* 'to pinch self'
Drehu	*i-*	*i-atre* 'to know e.o.'		*i-sej* 'to comb self'
East Futunan	*fe-*	*fe-tuli* 'to chase e.o.'		*fe-'umo* 'to pinch self'

There are even vague hints of similar reflexive-reciprocal syncretism in some languages of South New Caledonia. For instance, Bril (2005: 39) argues that in Ajië "the middle prefix *vi-* has reciprocal, reflexive, or collective meanings" but only provides one example of the reflexive use (*na vi-jiwé* 'he kills himself').[21] Moyse-Faurie (2015: 1047) notes that in Xârâcùù the prefix *-ù* "only derives a dozen verbs," two of which appear to qualify as reflexive (*cù* 'to comb sth.' ↔ *ù-cù* 'to comb self,' *mwé* 'to put sth. into water' ↔ *ù-mwé* 'to take a bath,' i.e. 'to put self into water') while two other verbs may be regarded as reciprocal with a little good will (*xâpârî* 'to see sb.' ↔ *ù-xâpârî* 'to meet,' *juu* 'to agree to sth.' ↔ *ù-juu* 'to come to an agreement,' i.e. ?'to agree to e.o.'). Both Ajië *vi-* and Xârâcùù *ù-* are derived from Proto-Oceanic **paRi-* as well.

An affix associated with reciprocity has also been reconstructed for Proto-Arawakan, **-k^hak^h*. According to Wise (1990: 109f.), the suffix in question likely had a reciprocal function in the proto-language because "that is its meaning in a wide range of [descendant Arawakan] languages" while "[i]n others the meaning is 'comitative' which is clearly semantically related to 'reciprocal.'" Wise's description suggests that

[21] Unfortunately, it has not been possible to obtain additional data on Ajië.

the functions of the Proto-Arawakan *-k^hak^h perhaps relate to the plurality of relations in general like Proto-Oceanic **paRi*- discussed above. In the Inland Northern Arawakan language Tariana the reflex *-kaka* has retained its reciprocal use, but the comitative function mentioned by Wise has become almost obsolete, being found only in "older people's speech" (Aikhenvald 2003: 264). In addition to its reciprocal function, the suffix in questions appears to have developed a marginal reflexive function found with three verbs; *pisu* 'to cut sb.,' *inu* 'to kill sb.,' and *ña* 'to hit sb.' (id.: 266f.; 2007b: 1357). The presumed development of the reflexive function from the reciprocal function is illustrated in figure 18 below.

Figure 18. Reflexive-reciprocal syncretism of reciprocal origin in Tariana

Proto-Arawakan	*-k^hak^h			
	↓	RECP (+ plurality of relations?)	→	REFL
Tariana	*-kaka*	*inu-kaka* 'to kill e.o.'		*inu-kaka* 'to kill self'

In her discussion of the Tariana suffix *-kaka*, Aikhenvald (2007b: 1357) states that "[a]ll North-Arawak languages of the Upper Rio Negro use the same verbal suffix for reciprocals and reflexives." However, here Aikhenvald does not refer to the same verbal suffix as in Tariana (nor cognates thereof) but to the fact that the each of the aforementioned languages possesses a suffix which is used in both the reflexive and reciprocal voices; e.g. *-na* in Warekena, *-tini* in Bare, and *-wa* in Baniwa (2007a: 847). By contrast, Wise (1990: 104) notes that the Yucuna suffix *-čaka* seemingly reflecting Proto-Arawakan *-k^hak^h has both reflexive and reciprocal functions, but it has not been possible to confirm this claim due to lack of data on the language.

Jensen (1998: 535) reconstructs both a reflexive prefix **je*- and a reciprocal prefix **jo*- for another South American genus, Tupi-Guaraní. Jensen does not address any additional functions of the latter prefix, but it is not unlikely that it may have had functions related to plurality of relations in light of the discussions above. In any case, Jensen argues that the Proto-Tupi-Guaraní prefix **jo*- is reflected by the prefix *ju*- in the descendant language Urubú-Ka'apor, while Proto-Tupi-Guaraní **je*- was lost in the said language (ibid.). The prefix *ju*- serves as voice marking in both the reflexive and reciprocal voices, in the latter accompanied by reduplication (Kakumasu 1986:

339f.). It seems that once the reflexive prefix **je-* was lost in (an earlier stage of) the language, the reflexive function was acquired by the reciprocal prefix **jo-* (later *ju-*) to the extent that additional marking (i.e. reduplication) eventually became necessary to express the original reciprocal meaning. Thus, it is worth noting that the synchronic reflexive-reciprocal syncretism in Urubú-Ka'apor qualifies as type 2 syncretism, unlike the synchronic reflexive-reciprocal syncretism of type 1 described for Hmwaveke, Drehu, East Futunan, and Tariana above.

The development of the syncretism in Urubú-Ka'apor is illustrated in figure 19 below (Kakumasu 1986: 340). Observe that reflexive-reciprocal syncretism of type 1b can be found in the related Tupi-Guaraní language Wayampi (e.g. *o-j-awyky* 'they do each other's hair' or 'they do their own respective hair;' Copin 2012: 334). However, in this language neither Proto-Tupi-Guaraní **je-* nor **jo-* has been lost; the prefix *j-* is simply an allomorph of both the synchronic prefixes *je-* and *jo-* which have been retained in Wayampi alongside their original reflexive and reciprocal functions.[22]

Figure 19. Reflexive-reciprocal syncretism of reciprocal origin in Tupi-Guaraní

Proto-Tupi-Guaraní	**jo-*			
	↓	RECP	→	REFL
Urubú-Ka'apor	*ju-*	*ju-tuka~tuka* 'to bump e.o.'		*ju-pukwar* 'to tie self'

Likewise, Alpher et al. (2003: 341) argue for a distinction between reflexive **-yi* and reciprocal **-nci* in Proto-Gunwinyguan based on observations from languages of the Gunwinyguan language family (AU) and beyond the family, including Worrorran, Tangkic, Nyulnyulan, and Mangarrayi-Marran languages; see table 33 below. In Tangkic languages, three Gunwinyguan languages (i.e. Waray, Ngandi, and Nunggubuyu), and the Mangarrayi-Maran language Warndarang the reflexive and reciprocal suffixes are distinct, while the remaining languages are characterised by

[22] Copin's (2012) account of the diathetic marking in the reflexive and reciprocal diatheses in Wayampi presented here contrasts with that of Jensen (1998) who argues that only Proto-Tupi-Guaraní **je-* has been retained in the said language (in the form *ji-*) while **jo-* has been lost. The authors probably address different varieties of the language.

reflexive-reciprocal syncretism. As discussed further below, it seems that the reciprocal voice marking in several Gunwinyguan languages has developed a reflexive function, and the same might even be true for Nyulnyulan languages and the Mangarrayi-Maran language Alawa. By contrast, the reflexive voice marking in Worrorran languages may have developed a reciprocal function, while it seems that a reflexive suffix and a reciprocal suffix have merged to form the suffix *-(ñ)jiyi* in Mangarrayi; the suffix *-yi* in this language is retained with "[o]nly five verbs" (Merlan 1989: 154).

Table 33. Reflexive-reciprocal syncretism in Australia[23]

		REFL		RECP
Worrorran	**Ungarinyin**	*-yi*	ʔ →	*-yi*
	Worrorra	*-ye*	ʔ →	*-ye*
Tangkic	**Kayardild**	*-yi*		*-nycu*
	Lardil	*-yi*		*-nyci*
Gunwinyguan	**Waray**	*-yi*		*-tji*
	Ngandi	*-i*		*-yḏi*
	Nunggubuyu	*-i*		*-nʸji*
	Rembarrnga	*-tti*	←	*-tti*
	Jawoyn	*-ci*	←	*-ci*
	Ngalakan	*-či*	←	*-či*
	Bininj Gun-Wok	*-rri*	←	*-rri*
	Dalabon	*-rri*	←	*-rri*
Nyulnyulan	**Warrwa**	*-nyci*	← ʔ	*-nyci*
	Bardi	*-inyci*	← ʔ	*-inyci*
	Nyigina	*-nyci*	← ʔ	*-nyci*
	Yawurru	*-nyci*	← ʔ	*-nyci*
Mangarrayi-Maran	**Warndarang**	*-i*		*-yi, (-ji)*
	Alawa	*-nyci*	← ʔ	*-nyci*
	Mangarrayi	*-yi/-(ñ)jiyi*		

[23] For information on the diachronic sound changes leading to the synchronic reciprocal suffixes, see Alpher et al. (2003: 343).

The data from the Gunwinyguan languages (and the observations from the Tangkic languages) in table 33 evidently suggest that "the original reciprocal suffix has extended its range to replace the original reflexive" in Rembarrnga, Jawoyn, Ngalakan, Bininj Gun-Wok, and Dalabon (Alpher et al. 2003: 343). Further evidence for this claim can be found in Nunggubuyu. As seen in the aforementioned table and as already mentioned further above, this language retains separate marking for the reflexive and reciprocal voices. However, as noted by Heath (1984: 392), "occasionally a morphological Recip[rocal] is used in reflexive sense" in the language, e.g. *wan^{g}i-n^{y}ji* 'to bite self' or 'to bite e.o.,' *ṟi-n^{y}ji* 'to spear self' or 'to spear e.o.' (ibid.). The development of reflexive-reciprocal syncretism in Nunggubuyu as well as Rembarrnga, Ngalakan, Dalabon, and Bininj Gun-Work is illustrated in figure 20 below (McKay 1975: 278, 282 on Rembarrnga; Merlan 1983: 193, 215 on Ngalakan; Evans 2003: 444 on Bininj Gun-Wok; Evans & Merlan 2003: 281 on Dalabon).[24]

Figure 20. Reflexive-reciprocal syncretism of recip. origin in Gunwinyguan[25]

Proto-Gunwinyguan	**-nci*		
	↓	RECP →	REFL
Nunggubuyu	*-n^{y}ji*	*ṟi-n^{y}ji* 'to spear e.o.'	*ṟi-n^{y}ji* 'to spear self'
Rembarrnga	*-tti*	*ṛokna-ttə-* 'to meet e.o.'	*ṭeṭmə-ttə-* 'to cut self'
Ngalakan	*-či*	*woymi-či-* 'to kill e.o.'	*dačmi-či-* 'to cut self'
Bininj Gun-Wok	*-rri*	*djobge-rre-* 'to cut e.o.'	*djobge-rre-* 'to cut self'
Dalabon	*-rri*	*wonawona-rr-* 'to listen to e.o.'	*wonawona-rr-* 'to listen to self'

As indicated by the question marks in table 33 further above, the diachrony of reflexive-reciprocal syncretism in the Worrorran, Nyulnyulan, and Mangarrayi-Maran languages is more uncertain. Only if it is assumed that the suffixes **-yi* and **-nci* reconstructed for Proto-Gunwinyguan can be traced further back to a Northern

[24] Unfortunately, no examples could be obtained for Jawoyn.

[25] Note that the suffixes differ slightly in their cited and realised forms due to various morphophonological and morphological conditions; for an overview of some of these differences, see Alpher et al. (2003: 342).

Australian ancestral language (or represent an ancient areal feature) shared by the aforementioned languages, the reflexive-reciprocal syncretism in Worrorran languages can be considered to be of reflexive origin, and the reflexive-reciprocal syncretism in Nyulnyulan languages and Alawa of reciprocal origin.

Finally, reflexive-reciprocal syncretism of reciprocal origin has been attested in at least one the Turkic language, Tuvan (EA). In this language the suffix *-š* serves as productive voice marking in the reciprocal voice, but can also have a reflexive function with verbs with the very specific meaning 'to make sth. dirty' or 'to smear sth.' even though there is another "specialized and highly productive marker of reflexivity" in the language, *-n* (Kuular 2007: 1213). Kuular lists five such verbs, each with the aforementioned meaning without the suffix *-š* (*bəlča-*, *bəlčakta-*, *bəlga-*, *bora-*, *öge-*) and with the meaning 'to make self dirty' or 'to smear self' with the suffix (*bəlča-š-*, *bəlčakta-š-*, *bəlga-š-*, *bora-š-*, *öge-š-*). According to Nedjalkov & Nedjalkov (2007), "[t]here is no generally accepted etymology of the reciprocal suffix" but it is known that "[r]eciprocity was marked by the suffix *-š* as early as in Common Turkic (approximately in the last centuries BCE)" (id.: 1154f.). As argued by Gandon (2018), other common uses of the reflexes of Common Turkic **-š* in descendant languages can be subsumed under the notion of plurality of relations. In any case, the reflexive use is a much more recent innovation in Tuvan; the development is illustrated below in figure 21 (Kuular 2007: 1177, 1213). Salo (2013) argues that a similar development has taken place in "Bashkir dialects in particular" and that "[t]his has been attested in some eastern and southern dialects" (sic; id.: 243). Unfortunately, Salo provides no examples, and it has not been possible to obtain data on these Bashkir varieties to confirm the claim.

Figure 21. Reflexive-reciprocal syncretism of reciprocal origin in Tuvan

Common Turkic	**-š*			
	↓	RECP (+ plurality of relations)	→	REFL
Tuvan	*-š*	*sögle-š-* 'to offend e.o.'		*öge-š-* 'to make self dirty'

Although the development from reciprocal to reflexive has been explicitly noted sporadically in the literature (mostly in relation to the Oceanic languages; e.g. Moyse-Faurie 2008, 2017), a possible explanation for the phenomenon has seldom been addressed. In a rare explicit discussion of the diachrony, Lichtenberk (2000: 46f.) briefly considers reflexive-reciprocal syncretism of reciprocal origin in East Futunan (cf. fig. 17 p. 227) noting that the reflexive function of the prefix *fe-* only is found with "body action" verbs, for which reason "these verbs must be distinguished from reflexives proper" (ibid.). Following Kemmer (1993), Lichtenberk (2000: 47) instead considers "such verbal constructions to be middle rather than reflexive." In turn, Lichtenberk argues that "middles are particularly close to reciprocals among the plurality-of-relations meanings" in terms of "Initiator-Endpoint unity" (id.: 48) meaning that all participants are both initiator and endpoint (cf. Kemmer 1993: 207ff.). Thus, Lichtenberk essentially proposes a reverse development from the reciprocal stage to the grooming/motion stage in Haspelmath's (2003) semantic map of voice development presented in figure 4 on page 205, but argues that the East Futunan prefix *fe-* has not developed a reflexive function that goes beyond body actions. However, it is clear from several of the examples in this section that the reflexive stage has been reached in other languages and a more general explanation is therefore needed.

As demonstrated throughout this and the preceding chapters, the reflexive and reciprocal voices are evidently functionally similar enough to converge in terms of voice marking in languages worldwide. Considering the close ties between the two voices, there is really no reason to assume that a voice development from reciprocal to reflexive cannot be explained in the same terms as voice development from reflexive to reciprocal discussed in §7.1.1, only in a reverse manner. Thus, it is here proposed that the development of reflexive-reciprocal syncretism of reciprocal origin essentially follows a reverse version of the developmental path from reflexive to reciprocal formulated by Heine & Miyashita (2008) in figure 8 on page 211; e.g. 'they wash each other' → 'they wash themselves' → 's/he washes himself.'

7.2.2 From reciprocal to anticausative

Reciprocal-anticausative syncretism of reciprocal origin has received minimal attention in the literature, and evidence for the phenomenon is accordingly scarce.

Nevertheless, there is some evidence for such diachrony, as shown in this section. For instance, reflexes of the Proto-Bantu suffix *-*an* are known to be "notoriously polysemic" in descendant Bantu languages (Bostoen et al. 2015: 732), though it is generally believed that it originally pertained to reciprocity and other functions of plurality of relations, notably sociativity (ibid.; Schadeberg 2003: 76; Dom et al. 2016: 137ff.). As discussed at length by Maslova (2000), the proto-suffix seems to be related to the preposition *na* 'with' in many Bantu languages which would suggest that the proto-suffix *-*an* likely had a sociative function when it first arose (cf. Kirundi *-tamb-an-* 'to dance together;' Ndayiragije 2006: 277) whence the reciprocal function subsequently evolved (cf. Kirundi *-kúbit-an-* 'to hit e.o.;' id.: 273). In any case, as observed by Maslova (2007: 345), reflexes of the suffix *-*an* "can be used as a non-reciprocal detransitivizer, although this phenomenon is very rare and highly lexically constrained." Likewise, Dom et al. (2016: 139) briefly mention that the reflexes in question can indicate "spontaneous events" in some descendant languages. Such development from reciprocal (and plurality of relations in general) to anticausative can, for instance, be found in Babungo and Orungu, as illustrated in figure 22 below (Schaub 1985: 209f. on Babungo; Ambouroue 2007: 191).

Figure 22. Reciprocal-anticausative syncretism of reciprocal origin in Bantu

Proto-Bantu	*-*an*			
	↓	RECP (+ plurality of relations)	→	ANTC
Babungo	*-ne*	*yé-né* 'to see e.o.'		*ngà'-nè* 'to open'
Orungu	*-àn*	*βòn-àn-* 'to look at e.o.'		*βùɾ-àn-* 'to fold/bend'

It can be briefly mentioned here that the reflexes of the Proto-Oceanic prefix **paRi-* described in the preceding section are observed to have a "spontaneous" use in some Oceanic languages (Lichtenberk 2000: 48; Bril 2005: 32, 51; Moyse-Faurie 2008: 109; 2017: 109). However, unlike the "spontaneous events" noted by Dom et al. (2016) among Bantu languages which qualify as anticausative, the "spontaneous" uses in the Oceanic languages are generally to be understood in the literal sense 'to happen spontaneously.' It has hitherto not been possible to find a proper anticausative function for any reflex of **paRi-* among the Oceanic languages.

Additionally, observe that the Common Turkic suffix *-*š* with functions related to reciprocity and plurality of relations discussed in the previous section has possibly developed an anticausative function in some descendant languages, including Tuvan which was also addressed in the aforementioned section. While the reflexive use of the suffix -*š* in this language is very restricted in this language, its anticausative use is more productive (Kuular 2007: 1221f.) although not as productive as its reciprocal use (id.: 1176ff.). An anticausative use of the suffix is also attested in a handful of other related languages, but in these languages the use is considerably more marginal. For instance, Nedjalkov (2007: 295) and Nedjalkov & Nedjalkov (2007: 1142) observe a "non-productive" anticausative function of the suffix -*s* in Yakut, and Gandon (2013: 16f.; 2018) notes that the suffix -*ş* in Turkish has an anticausative function with twelve verbs. Gandon (2013: 57ff.) also provides a list of other Turkic languages in which hints of an anticausative use of the suffix can be found, including Khakas, Uzbek, Tatar, and Karachay-Balkar. Gandon even provides two examples of what seems to be an anticausative use of the suffix -*ş* in 11th–13th century Old Turkic; i.e. *kar-* 'to mix sth.' ↔ *kar-ış* 'to mix,' *kat-* 'to join sth.' ↔ *kat-ış* 'to join (up)' (id.: 58). The potential diachronic development in these languages is illustrated by examples from Tuvan, Yakut, and Turkish in figure 23 below (Kuular 2007: 1177, 1222 on Tuvan; Nedjalkov 2007: 295 and Nedjalkov & Nedjalkov 2007: 1112 on Yakut; Gandon 2013: 12, 17 on Turkish).

Figure 23. Reciprocal-anticausative syncretism of reciprocal origin in Turkic

Common Turkic	*-*š*			
	↓	RECP (+ plurality of relations)	→	ANTC
Tuvan	-*š*	*tanə-š-* 'to know e.o.'		*möörŋe-š-* 'to accumulate'
Yakut	-*s*	*bul-us-* 'to find e.o.'		*tüm-üs-* 'to gather'
Turkish	-*ş*	*bul-uş-* 'to find e.o.'		*yığ-ış-* 'to pile up'

Nevertheless, considering the age of the abovementioned Old Turkic examples and the wide distribution of the (barely productive) anticausative use among modern Turkic languages in general, it can alternatively be hypothesised that Common Turkic *-*š* had a marginal anticausative function, traces of which have simply been retained

in descendant languages. In any case, functions related to reciprocity and plurality of relations would have been considerably more common than an anticausative function in Common Turkic, and Gandon (2018) ultimately favours a diachronic development from reciprocal to anticausative.

Finally, in the preceding section it was discussed at length that the Proto-Gunwinyguan reciprocal suffix *-*nci* appears to have developed a reflexive function in several descendant languages (vid. fig. 20 page 231). In one of these languages, the Gunwinyguan language Ngalakan, the reflex *-či* has even developed a marginal anticausative function. Merlan (1983: 133) explicitly argues that "[o]ften the reflexive-reciprocal is used with a kind of 'middle' meaning, and represents a process as taking place only within and affecting the crossreferenced NP, not occurring through outside agency." Merlan provides the verb *jurmi-či-* 'to spill' as an example (ibid.; cf. *jurmi-* 'to pour sth.,' i.e. 'to make sth. spill;' id.: 203), and additional examples can be located elsewhere in Merlan's descriptive grammar of the language; e.g., *ḷerʔmi-* 'to set sth. alight' ↔ *ḷerʔmi-či-* 'to come alight' (ibid.; id.: 7, 87), *jorŋmi-* 'to stretch sth.' ↔ *jorŋmi-či-* 'to stretch' (id.: 202).[26] However, it should be noted that the suffix *-či* in Ngalakan also has a reflexive function, and the more precise chronological order of this and the anticausative function is uncertain. Thus, as illustrated in figure 24 below, it is plausible that the anticausative function has evolved from reflexive-reciprocal syncretism and not from reciprocity alone. It has hitherto not been possible to find similar syncretism in other Gunwinyguan languages.

Figure 24. Reciprocal-anticausative syncretism of reciprocal origin in Ngalakan

Proto-Gunwinyguan	*-*nci*			
	↓	RECP (+ REFL?)	→	ANTC
Ngalakan	*-či*	*woymi-či-* 'to kill e.o.'		*ḷerʔmi-či-* 'to come alight'

[26] Note that the Ngalakan verbs are here presented with the thematic auxiliary *-mi* "to which tense-aspect and reflexive-reciprocal suffixes are added" in thematic verbs like *jur-*, *ḷerʔ-*, and *jorŋ-* (Merlan 1983: 93).

In terms of diachrony, it is possible that the rise of reciprocal-anticausative syncretism is facilitated by lexically reciprocal verbs which do not necessarily involve conscious mutual action by the involved semantic participants. As observed by Nedjalkov & Nedjalkov (2007), the anticausative function of the suffix *-s* in Yakut is restricted to such verbs; e.g. *tüm-* 'to gather sth.' → *tüm-üs-* 'to gather each other' → 'to gather.' As evident by the Bantu and Ngalakan examples presented above, the anticausative function appears to be less restricted in these languages, but it may very well have evolved in relation to lexically reciprocal verbs, too; cf., e.g., the Bantu language Venda *-kuvhang-an-* 'to gather' (Maslova 2007: 341) and Ngalakan *-mala-maŋi-či-* 'to gather' (*mala-* is a collective 'group' suffix, i.e. 'to all gather;' Merlan 1983: 94). As discussed later in §7.3.2, an opposite development from anticausative to reciprocal might have taken place in the extinct Indo-European language Hittite.

7.2.3 From reciprocal to passive

It has not been possible to find any good evidence for diachronic development from reciprocal to passive. Heine & Miyashita (2008: 206) briefly considers such diachrony for the prefix *mə-* in the Berber language Tuareg (AF) which has passive and reciprocal functions, but no reflexive function, yet they conclude that "this case provides no convincing evidence for a reciprocal > passive evolution" because a cognate prefix in the related language Tamasheq features a reflexive function (ibid). In the language sample of the present study the Highland East Cushitic language has also been found to feature a suffix, *-am*, with passive and reciprocal functions (in addition to an anticausative function), but no reflexive function, yet the original function of this suffix appears to have been passive, as further argued in §7.4.2.

7.2.4 From reciprocal to antipassive

Diachronic development from reciprocal to antipassive has received slightly more attention in the literature than the diachronic scenarios discussed in the preceding three sections. The diachrony has notably been discussed in relation to Bantu languages (AF; e.g. Bostoen et al. 2015) and Oceanic languages (PN; e.g. Janic 2016), yet sporadic evidence for the phenomenon can also be found in other parts of the world. By

contrast, diachronic development from antipassive to reciprocal remains unattested for the time being.

The Proto-Bantu suffix *-*an* associated with reciprocity and plurality of relations discussed in §7.2.2 has developed an antipassive function in a number of descendant languages, including Kirundi (Ndayiragije 2006: 272ff.), Swazi, Ndonga (Nedjalkov 2007d: 297f.), and Tswana (Creissels 2018: 755). Bostoen et al. (2015: 731f.) argue that the antipassive-reciprocal syncretism in question has largely been overlooked among the Bantu languages in the past, suggesting that it might be more widespread than previously believed, and further attest the syncretism in Kinyarwanda, Gikuyu, Kikamba, and Kilega (id.: 738ff.). They even mention a few Bantu languages "where an unproductive antipassive marker is likely to exist" (id.: 742ff.). The diachrony of the antipassive-reciprocal syncretism is illustrated by examples from a few of these languages in figure 25 below (Ndayiragije 2006: 275 on Kirundi; Coupez 1985: 15, 19 on Kinyarwanda; Mugane 1999: 163f.; Kioko 2005: 39 on Kikamba; Botne 2003: 136f. on Kilega). Bostoen et al. also provide an interesting account of Kisongye in which the suffix *-an* "is no longer polysemic" but "has become a dedicated antipassive marker," while reciprocity is "currently expressed through a combination of reflexive prefix *-i* and the suffix *-een-*, which is analyzed as a representation of *-an-* fused with the applicative suffix *-il-*" (id.: 741).

Figure 25. Antipassive-reciprocal syncretism of reciprocal origin in Bantoid

Proto-Bantu	*-*an*			
	↓	RECP (+ plurality of relations)	→	ANTP
Kirundi	*-an*	*-tuk-an-* 'to insult e.o.'		*-tuk-an-* 'to insult [sb.]'
Kinyarwanda	*-an*	*-kurèb-an-* 'to look at e.o.'		*-érek-an* 'to show [sb.]'
Gikuyu	*-an*	*-ingat-an-* 'to chase e.o.'		*-ingat-an-* 'to chase [sb.]'
Kikamba	*-an*	*-m-an-* 'to bite e.o.'		*-m-an-* 'to bite [sb.]'
Kilega	*-an*	*-kugamb-an-* 'to slander e.o.'		*-kugamb-an-* 'to slander [sb.]'

Like the Proto-Bantu suffix *-*an*, the Proto-Oceanic prefix **paRi-* is also generally associated with functions pertaining to plurality of relations, including reciprocity (§7.2.1). It seems that this prefix has developed an antipassive function in some

descendant languages, though the chronological order in which the antipassive function evolved in relation to the reciprocal function remains somewhat uncertain. Janic (2016) speculates that the prefix probably had a general function in the proto-language "where the assignment of the semantic roles to the participants of the event was motivated by the general knowledge of the world, lexical meaning of a verb and/or by the external factors such as discourse context," before it later "started to categorize the events characterized by the plurality of relations into more specific types such as reciprocal, antipassive, collective and chaining etc." (id.: 178). This scenario suggests that antipassivity did not necessarily evolve from reciprocity, but concurrently alongside it. However, Janic admits that "[d]ue to the lack of historical data, the proposed hypothesis is highly speculative and by no means categorical and absolute in nature" (ibid.) and "a later development of the antipassive in the Oceanic languages cannot be entirely excluded" (id.: 179). It is, for instance, worth observing that attestations of the antipassive function are rather sporadic among the Oceanic language, while the reciprocal function is widespread (as also mentioned by Janic; id.: 160). Furthermore, Pawley (1973) argues that the prefix **paRi-* is likely to have had a reciprocal function in Proto-Oceanic, albeit "restricted to a subclass of verbs" (id.: 151). Consequently, the possibility of a reciprocal origin for the antipassive-reciprocal syncretism is here kept open; see figure 26 further below (Lichtenberk 2007: 1552, 1560 on To'aba'ita; Mosel 1984: 146f. on Tolai; Davis 2003: 136f. on Hoava; Bril 2005: 35ff., 47, 57 on Drehu, Iaai, and Fijian).

Antipassive-reciprocal syncretism among Oceanic languages has notably been discussed repeatedly in relation to the prefix *kwai-* in To'aba'ita by Lichtenberk (1991, 2000, 2007). Additionally, Mosel (1984) explicitly argues that the prefix *var-* in Tolai "does not exclusively mean reciprocity, but is also used to derive non-reciprocal intransitive verbs from transitive verbs" (id.: 147; see also id.: 156). An antipassive function is also observed by Davis (2003: 137f.) for the prefix *vari-* in Hoava, by Bril (2005: 37f.) for the prefixes *i-* and *ü-* in Drehu and Iaai (and possibly in Nengone), and by Janic (2016: 164) for the prefix *vei-* in Standard Fijian. Bril (2005: 33) also mentions a marginal and lexicalised function of the Xârâcùù prefix *ù-* which is reminiscent of antipassivity; e.g. *bë* 'to move to sth.' ↔ *ù-bë* 'to be jittery,' *xù* 'to give sb. sth.' ↔ *ù-xù* 'to be contagious' (id.: 39); Moyse-Faurie (2015: 1047) adds the

examples *da* ‘to eat sth.’ ↔ *ù-da* ‘to bite [sb.],’ *sö* ‘to pride oneself on sth.’ ↔ *ù-sö* ‘to be haughty, be a boaster.” The abovementioned prefixes are all derived from Proto-Oceanic **paRi-*.[27]

Figure 26. Antipassive-reciprocal syncretism of reciprocal origin in Oceanic

Proto-Oceanic	**paRi-*			
	↓	RECP (+ plurality of relations)	→	ANTP
To’aba’ita	*kwai-*	*kwai-ngalufi* ‘to berate e.o.’		*kwai-labata’i* ‘to harm [sth.]’
Tolai	*var-*	*var-ubu* ‘to hit e.o.’		*var-karat* ‘to bite [sth.]’
Hoava	*vari-*	*vari-ome* ‘to see e.o.’		*vari-poni* ‘to give [sth.]’
Drehu	*i-*	*i-aja* ‘to desire e.o.’		*i-hej* ‘to bite [sth.]’
Iaai	*ü-*	*ü-hlingöö* ‘to kill e.o.’		*ü-hülü* ‘to bite [sth.]’
Fijian	*vei-*	*vei-dree* ‘to pull e.o.’		*vei-vuke* ‘to bite [sth.]’’

The uncertainty regarding the diachronic development of antipassive-reciprocal syncretism described for the Oceanic languages above also extends to certain Turkic languages (EA). As discussed in §7.2.1 and §7.2.2, the suffix **-š* in Common Turkic is generally believed to have had functions related to reciprocity and plurality of relations, and in at least two descendant languages the suffix in question has developed an antipassive function. In Tatar the antipassive function of the reflex *-š* is rather productive and has already been exemplified implicitly in §4.2.2 (vid. exx. 178-181 p. 115), while the said function of the reflex *-s* in Yakut is considerably more restricted (Nedjalkov 2007: 238; 2006: 244). In the spirit of Janic (2016), Gandon (2018) argues that the reciprocal and antipassive functions in these languages evolved independently of each other from a general function pertaining to plurality of relations. However, considering the very limited distribution of the antipassive function among the Turkic languages, the reciprocal function most likely developed prior to the antipassive function, which is probably an innovation in Tatar and Yakut. The plausible

[27] Note the odd form of the To’aba’ita prefix. Lichtenberk (2007) argues that “the expected reflex in To’aba’ita is **fai-*” but “[f]or some reason, in the proto-language from which To’aba’ita and a few other very closely related languages are descended the prefix underwent an irregular change of earlier ***f* to ***w*” and “[l]ater on in the history of these languages, ***w* changed to *kw*” (id.: 1566f.).

development from reciprocal to antipassive in these languages is illustrated in figure 27 below. Note that Kuular (2007: 1214) briefly describes a "detransitive" use of the suffix *-š* in Tuvan whereby "[a] direct object is transformed into a non-direct object." However, it is unclear if the suffix simply entails a change in language-specific argument marking or if it indicates that the "non-direct object" is less likely to be expressed syntactically and thereby qualifies as antipassive.

Figure 27. Antipassive-reciprocal syncretism of reciprocal origin in Turkic

Common Turkic	**-š*			
	↓	RECP (+ plurality of relations)	→	ANTP
Tatar	*-š*	*sug-əš-* 'to hit e.o.'		*jaz-əš-* 'to write [sth.]'
Yakut	*-s*	*kuot-us-* 'to outrun e.o.'		*kuot-us-* 'to outrun [sb.]'

Additionally, as argued in §7.2.1, a reciprocal suffix **-nci* can be reconstructed rather reliably for Proto-Gunwinyguan. In the descendant Gunwinyguan language Nunggubuyu (AU) the reflex *-nʸji* seems to have developed an antipassive function, though it is worth noting that the said function is very restricted in the language. The only two examples of the phenomenon in the language provided by Heath (1984: 391ff.) are those illustrated figure 28 below.

Figure 28. Antipassive-reciprocal syncretism of recip. origin in Nunggubuyu

Proto-Gunwinyguan	**-nci*			
	↓	RECP	→	ANTP
Nunggubuyu	*-nʸji*	*na-nʸji-* 'to see e.o.'		*warguri-nʸji-* 'to carry [sth.]'
		yalgiwa-nʸji- 'to pass e.o.'		*lharma-nʸji-* 'to chase [sth.]'

As already discussed in §5.2.3, the suffix *-ut* in the Eskimo language Central Alaskan Yupik (NA) can serve as voice marking in not only the antipassive and reciprocal voices, but also in the applicative voice, commonly with a comitative function. In fact, Fortescue (2007: 841) argues that the suffix is "an original applicative formant," a use retained throughout the Eskimo-Aleut language family. Fortescue reconstructs the applicative-reciprocal suffix **-utə* for Proto-Eskimo, as

both functions can be found in all descendant languages (ibid.; Fortescue et al. 1994: 431). In contrast, the antipassive use of the suffix does not appear to be widespread and is, for instance, absent in the Inuit languages West Greenlandic (Schmidt 2003) and Inuktitut (Spreng 2006). Furthermore, in Central Alaskan Yupik the applicative use of *-ut* is only restricted to a "rather limited number of stems," unlike the applicative and reciprocal uses (Miyaoka 2012: 1109). Evidently, the antipassive function of the suffix *-ut* represents an innovation that has evolved from applicative-reciprocal syncretism, as illustrated in figure 29 below (Miyaoka 2012: 1092f.). Thus, the evolution of antipassive-reciprocal syncretism in Central Alaskan Yupik is slightly different from that discussed above for Bantu and Turkic languages as well as Nunggubuyu.

Figure 29. Antipassive-reciprocal of reciprocal origin in Central Alaskan Yupik

Proto-Eskimo	*-*utə*			
	↓	RECP (+ APPL)	→	ANTP
C. A. Yupik	*-ut*	*ikayu-ut-* 'to help e.o.' (cf. *an-ut-* 'to go out with sb.')		*ikayu-ut-* 'to help [sb.]'

Finally, the Kordofanian language Lumun (AF) will briefly be addressed here in relation to its affixes *-(a)rɔ* (with the allomorphs <*ar*>, <*rɔ*> and *-rɔ*) and *-ttɔ* (with the allomorph <*ttɔ*>) which can both serve as voice marking in the reciprocal and antipassive voices, as already discussed in §4.2.2. Cognates of these affixes can be found in the related language Dagik, in which <*(ə)r*> indicates sociativity and reciprocity (Vanderelst 2016: 98ff.), and <*-(ə)tː*> pluractionality, iterativity, habituality, durativity (id.: 128ff.) and also reciprocity in combination with the aforementioned affix (id.: 99). Neither affix in Dagik seems to have an antipassive function. Considering the limited data from these two languages and the cross-linguistic examples of antipassive-reciprocal syncretism of reciprocal origin presented above, it is plausible that the antipassive function of the affixes *-(a)rɔ* and *-ttɔ* in Lumun evolved from reciprocity. Nevertheless, it is equally plausible that the said function evolved from a general function pertaining to plurality of relations, for which reason the origin is considered unresolved for the time being.

In terms of functional explanations for antipassive-reciprocal syncretism, both Janic (2016) and Gandon (2018) argue that the antipassive and reciprocal functions evolved independently from a general function pertaining to plurality of relations, at least in the Oceanic and Turkic languages, as already noted further above. While Janic (2016) does not address the diachrony in detail, Gandon (2018) specifically argues that the antipassive function of the Common Turkic suffix *-*š* evolved from plurality of actions due to its close relationship to iterativity, unlike reciprocity associated with the plurality of participants. Such association between antipassivity and aspect is typologically well known (e.g. Polinsky 2017). By contrast, Bostoen et al. (2015) acknowledges similarities between antipassivity and plurality of actions, but ultimately argue that "it is the progressive destitution of the second participant of the coordinated plural subject in reciprocal constructions that ultimately leads to the antipassive," at least among the Bantu languages, and they thus link the rise of antipassivity to plurality of participants like reciprocity (id.: 759). In other words, reciprocal referents go from being equally prominent to being differentiated according to prominence (for instance, by word order or a comitative phrase language-specifically) before the least prominent referents are eventually omitted due to lack of prominence leading to antipassivity. Such scenario is perhaps best conceivable with lexically reciprocal verbs, e.g. 'the man and his friends meet each other' → 'the man meets with his friends' → 'the man meets his friends' → 'the man meets [his friends].'

As already discussed and visualised in §7.1.4, Sansò (2017, 2018) adopts a somewhat similar approach, highlighting sociativity and comitativity as facilitating factors in the development from reciprocal to antipassive (cf. fig. 16 p. 224). Nevertheless, it can be difficult to effectively distinguish the explanations proposed by Janic (2016), Gandon (2018), Bostoen et al. (2015), and Sansò (2017, 2018) from each other in practice due to the close relationship between reciprocity and plurality of relations, and the explanations do not necessarily exclude each other. In any case, this section importantly shows that the reciprocal functions of the voice marking discussed in the various languages above most likely evolved prior to the antipassive functions. In turn, the exact chronology of the functions pertaining to plurality of participants (including reciprocity) remains a topic of future research.

7.2.5 From reciprocal to causative

As demonstrated in §5.3.1, the suffix *-kaka* in the Arawakan language Yine (SA) can serve as voice marking in both the causative and reciprocal voices (cf. exx. 486-488 p. 172). Moreover, as mentioned in §7.2.1, Wise (1990) reconstructs a reciprocal function for the Proto-Arawakan suffix **-k^hak^h* whence the Yine suffix derives which indicates a reciprocal origin for the causative-reciprocal syncretism in the said language. This presumed development is illustrated in figure 30 below (Hanson 2010: 269, 271). However, it is worth observing that Wise (1990) and Payne (2002) both suggest that the aforementioned development has been facilitated by comitative applicativity, at least among Pre-Andine Arawakan languages, as further discussed in 7.6.3. While Yine does not belong to the aforementioned Arawakan grouping, the possibility of an applicative stage is presented in parentheses in the figure below.

Figure 30. Causative-reciprocal syncretism of reciprocal origin in Yine

Proto-Arawakan	**-k^hak^h*			
	↓	RECP	(→ APPL?) →	CAUS
Yine	*-kaka*	*-hiylaka-kaka* ‘to hit e.o.’		*-halna-kaka* ‘to make sth. fly’

So far it has only been possible to find potential evidence for diachronic development from reciprocal to causative in two other language than Yine, the Atlantic language Wolof (AF) and the Turkic language Khakhas (EA). As briefly noted in §4.3.5, the former language features the suffix *-e* with causative and reciprocal functions (in addition to applicative and antipassive functions). Creissels & Nouguier-Voisin (2008) argue that “reciprocal *-e* may be the reflex of an ancient suffix **-e* whose possible uses included several varieties of co-participation” (id.: 304). This diachronic scenario would be very similar to that mentioned for the Pre-Andine Arawakan languages mentioned further above, though Creissels & Nouguier-Voisin admit that more comparative research is needed to confirm their proposal.

The Khakhas case is analogous to the Yine and Wolof cases. In this language the suffix *-s* has been observed to have a causative function with two verbs (538-539). As discussed in the preceding section as well as in §7.2.1 and §7.2.2, the Common Turkic suffix **-š* whence Khakas *-s* descends is generally believed to have had functions

pertaining to reciprocity and plurality of relations (cf. *hucahta-s-* ‘to embrace e.o.;’ Arıkoğlu 2007: 1100). Gandon (2013: 71) briefly notes that a similar phenomenon is exemplified by Öner (2007: 707) for Tatar (cf. *kal-* ‘to stay’ ↔ *kal-ış-* ‘to leave sth.;’ ibid.), but goes on to argue that the translation of the latter verb here seems to be incorrect as Öner translates it ‘to stay behind’ elsewhere (Öner 2009).

Khakhas (Arıkoğlu 2007: 1101; Gandon 2013: 71)

538.	CAUS	*art-*	‘to stay’	↔	*art-ıs-*	‘to leave sth.’ (i.e. ‘to make sth. stay’)
539.	CAUS	*em-*	‘to suckle’	↔	*em-ĭs-*	‘to breastfeed sb.’ (i.e. ‘to make sb. suckle’)

In light of the evidence presented above, it would seem that some sense of comitativity or co-participation is central to the diachronic development from reciprocal to causative, and this matter is addressed in more detail in §7.6.3.

7.2.6 From reciprocal to applicative

Evidence for a diachronic development from reciprocal to applicative is scant and the phenomenon has received little attention in the literature, yet the development does appear to have taken place in at least two genera in the language sample of the present study. For instance, as already discussed in §7.2.2, the Proto-Bantu suffix **-an* is widely associated with reciprocity, sociativity, and other functions related to plurality of relations. While these functions are attested for reflexes of the suffix in a wide range of descendant Bantu languages (AF), it seems that reflexes of the suffix have developed a proper comitative and/or instrumental applicative function only sporadically (Bostoen et al. 2015: 753ff.; Dom et al. 2016: 138f.). This development is illustrated in figure 31 below (Ittmann 1939: 140f. via Maslova 2007: 341 on Duala; Aksenova 1994: 160, 177 via Nedjalkov 2007d: 275 on Kinyarwanda).

Figure 31. Applicative-reciprocal syncretism of reciprocal origin in Bantu

Proto-Bantu	**-an*		
	↓	RECP (+ plurality of relations)	→ APPL
Duala	*-ne*	*énè-ne* ‘to see e.o.’	*dípà-ne* ‘to beat sb. with sth.’
Kinyarwanda	*-an*	*-kurèb-an-* ‘to look at e.o.’	*-kôr-an-* ‘to work with sth./sb.’

Likewise, as discussed in the preceding sections, reflexes of the Common Turkic suffix *-*š* are in descendant languages widely associated with functions pertaining to plurality of relations like the Proto-Bantu suffix *-*an* discussed above, including reciprocity and plurality of relations. In some Turkic languages (EA) reflexes of the proto-suffix *-*š* appear to have evolved a proper comitative applicative function, for instance in Yakut and Tuvan, as illustrated in figure 32 below (Nedjalkov 2007b: 107 on Yakut; Kuular 2007: 1201 on Tuvan). By comparison, in Karachay-Balkar the suffix -*š* has a sociative function (e.g. *oŋsun-uš-* 'to be pleased together;' Nedjalkov & Nedjalkov 2007: 1001) but no comitative applicative function, while the suffix has neither function in Kirghiz (Nedjalkov 2007e: 1233); the reciprocal function is retained in both languages.

Figure 32. Applicative-reciprocal syncretism of applicative origin in Turkic

Common Turkic	*-*š*				
	↓		RECP (+ plurality of relations)	→	APPL
Yakut	*-s*	*ölör-üs-*	'to kill each other'		'to kill sb. with sb.'
Tuvan	*-š*	*üpte-š-*	'to rob each other'		'to rob sb. with sb.'

Observe that the Yakut and Tuvan verbs in figure 32 also can have a sociative meaning, i.e. 'to kill sb. together' and 'to rob sb. together,' respectively; and so can the suffix *-an* in Kinyarwanda (cf. *-guhîng-an-* 'to cultivate sth. together;' Coupez 1985: 15), while it is unclear to which extent this function is productive for the suffix *-ne* in Duala. This syncretism clearly illustrates the close semantic relation between reciprocity and sociativity (i.e. plurality of participants) on the one hand and comitative applicativity on the other hand. In turn, comitative applicativity is closely related to instrumental applicativity, as further discussed in §7.5.3 and §7.6.3 (see also, e.g., Creissels & Nouguier-Voisin 2008 on co-participation). These semantic links provide a plausible explanation for the rise of applicative-reciprocal syncretism in the languages discussed in this section.

7.3 Anticausative origin

Prospects of an anticausative origin for voice syncretism is generally associated specifically with passive-anticausative syncretism, as diachronic development from anticausative to passive is often regarded as an intermediary step in the evolution from reflexive to passive, notably among Indo-European languages, as already discussed at length in §7.1.3. However, in §7.3.3 it will be shown that passive passive-anticausative syncretism can also have an anticausative origin not associated with reflexivity. Furthermore, Inglese (2019) has recently argued for an anticausative origin for reflexive-anticausative and reciprocal-anticausative syncretism in the extinct Indo-European language Hittite, as discussed in the next two sections. Finally, it is briefly noted in §7.3.4 that there is currently no good evidence for development from anticausative to passive.

7.3.1 From anticausative to reflexive

While a development from reflexive to anticausative is well-attested cross-linguistically (§7.1.2), evidence for the opposite development is scant and seemingly restricted to the extinct Indo-European language Hittite, as mentioned in the previous section. As discussed by Inglese (2019), this language possesses a large set of suffixes (henceforth called "middle suffixes" for the sake of convenience) which have a wide range of functional functions, four of which are of particular interest to the present discussion: passive, reflexive, reciprocal, and anticausative. These functions are illustrated in examples (540-547) below; the translations on the left side of the bidirectional arrows denote the meanings of the respective verbs when used *without* one of the middle suffixes, while the translations on the right side of the said arrows denote meanings of the respective verbs when used *with* one of the middle suffixes. Inglese ultimately argues that the anticausative function has given rise to the other three functions "via different paths of semantic extension" (id.: 240) as discussed further below. In turn, the anticausative function itself is believed to have evolved from media tantum (i.e. deponent verbs) which always feature the said suffixes and cannot be used without them (id.: 214ff.; see also Luraghi 2012).

Hittite (Inglese 2019: 116; 124; 130; ibid.; 132; 137; 115f.; ibid.)

540.	PASS	*istāp-*	‘to close sth.’	↔	[mid.] ‘to be closed [by sb.]’
541.	PASS	*tamāss-*	‘to oppress sb.’	↔	[mid.] ‘to be oppressed [by sb.]’
542.	REFL	*suppiyahh-*	‘to purify sb.’	↔	[mid.] ‘to purify self’
543.	REFL	*das(sa)nu-*	‘to strengthen sb.’	↔	[mid.] ‘to strengthen self’
544.	RECP	*zahh-*	‘to hit sth.’	↔	[mid.] ‘to hit e.o.’
545.	RECP	*epp-*	‘to take sth.’	↔	[mid.] ‘to take e.o.’
546.	ANTC	*zinni-*	‘to end sth.’	↔	[mid.] ‘to end’
547.	ANTC	*istāp-*	‘to close sth.’	↔	[mid.] ‘to close’

Inglese (2019) favours an anticausative origin for the passive, reciprocal, and reflexive functions of the middle suffixes in Hittite for a number of reasons, the most important of which are here summarised in brief. Firstly, Inglese’s data from different diachronic stages of the Hittite language “clearly shows that the passive function is on the rise in the history of Hittite, so that it appears to be a relatively younger development, hence unlikely to be the original function of the middle voice” (id.: 204). Secondly, the reciprocal function “also constitutes an unlikely candidate for the original function of the middle” because it is “the least frequent function associated with the middle voice” (ibid.). Moreover, the middle suffixes in Hittite are not associated with plurality of relations which alongside reciprocity is known to serve as an origin for other voices (§7.2). Thirdly, following Luraghi (2010, 2012), Inglese (2019) argues that “reflexivity can hardly lie at the core of the Hittite middle voice system” because it “remains a quantitatively marginal function throughout the history of the language” and “middle forms with reflexive reading are reinforced by the particle *=za* since their earliest attestation” (id.: 203). In fact, Inglese attests only two verbs that can have a reflexive meaning when used with a middle suffix in his corpus of original Hittite texts (cf. exx. 549-550), and in both cases the verbs are accompanied by the particle *=za* (id.: 130) which also can be used on its own without a middle suffix to denote reflexivity (id.: 84). In his corpus of copies of Hittite texts, Inglese only

attests six additional verbs of the same kind which "are also quite systematically associated with the particle =*za*" (id.: 130f.).[28]

A probable developmental scenario from anticausative to reflexive is discussed below, while plausible scenarios of development from anticausative to reciprocal and from anticausative to passive are addressed in the following two sections. Inglese (2019: 208ff.) suggests that the reflexive function of the middle suffixes in Hittite has evolved from the anticausative function facilitated by autocausativity; e.g. 'if some enemy mobilizes [*niniktari*.PRS.3SG.MID]' (i.e. 'to rise;' the verb *ninik-* has the meaning 'to raise sth' without a middle suffix). According to Inglese, "[o]ne can speculate that the possibility of animate subjects to occur with otherwise [anti]causative verbs led to the expansion of the autocausative use, hence providing the natural bridging context to reflexive situations proper, in which the subject not only initiates the event, but is also fully affected by it" (id.: 209f.; cf. exx. 542-543). This diachronic scenario is essentially the exact opposite of the scenario from reflexive to anticausative discussed in §7.1.2, and boils down to a shift in animacy and thereby a shift in the capability to act upon oneself or not.

7.3.2 From anticausative to reciprocal

As noted in §7.2.2, evidence for reciprocal-anticausative syncretism of reciprocal origin is difficult to come by, and the same is true of evidence for an anticausative origin of the said syncretism. Indeed, the reciprocal and anticausative voices are both more commonly known to evolve from the reflexive voice (§§7.1.1–7.1.2). However, as demonstrated in §7.2.2, there is some evidence supporting reciprocal-anticausative syncretism of reciprocal origin, and in the present section potential evidence for an anticausative origin of the aforementioned syncretism is addressed. As already discussed in the preceding section, Inglese (2019) argues that the reciprocal function of middle suffixes in the extinct Indo-European language Hittite has evolved from an

[28] The distinction between original Hittite texts and copies thereof is important, as copies tend to contain alterations of various sorts and are consequently "often unreliable as to the original linguistic layer of a given composition, and should be handled with due care as a source of linguistic evidence" (Inglese 2019: 46).

earlier anticausative function and not vice versa. Inglese considers two potential scenarios for the said development, both of which are briefly addressed below.

As shown in §7.1.1, it is well-known that reflexive voice marking can develop a reciprocal function, and Inglese (2017, 2019) notes that one can therefore hypothesise that a reflexive function of the middle suffixes in Hittite first developed from an anticausative function (as described in the previous section) and that a reciprocal function later developed from the said reflexive function. Nevertheless, Inglese considers this scenario unlikely as the reflexive function of the middle suffixes is "extremely limited in O[ld] H[ittite]" (id.: 211f.) and restricted largely to two verbs, as already noted in the preceding section. Instead, Inglese argues that the reciprocal function of the middle suffixes in Hittite likely evolved directly from the anticausative function initially among lexically reciprocal verbs; e.g. 'the gods gathered [*taruppantat*.PST.3PL.MID] all together' (Inglese 2019: 211f.). Inglese suggests that "[d]ue to the specific interplay of the verb's inherent reciprocal meaning, the middle voice's autocausative meaning, and the plurality of the subjects involved […] can be conceived as describing a situation in which multiple entities bring about a change in spatial configuration with respect to one another" and "[f]rom such contexts, a reciprocal non-spatial meaning can be easily inferred as primary, and the reciprocal meaning can eventually be extended to non-spatial situations" (ibid.). Thus, the scenario hypothesised by Inglese basically represents a reverse development in comparison to the development from reciprocal to anticausative described in §7.2.2; *tarupp-* 'to gather sth.' → *tarupp-* [mid.] 'to gather' (id.: 211f.) and by extension → *zahh-* [mid.] 'to hit e.o.' (id.: 137).

7.3.3 From anticausative to passive

As mentioned in §7.3, voice development from anticausative to passive is perhaps best known as an intermediary step in the evolution from reflexive to passive, notably among Indo-European, as discussed in more detail in §7.1.3. As noted in the aforementioned section, the voice development in these languages can also be characterised as syncretic reflexive-anticausative voice marking developing a passive function, because the marking in question generally had both reflexive and anticausative functions when the passive function first evolved. A similar

development seems to have taken place in, e.g., the Tibeto-Burman language Dhimal (EA) as noted in §4.1.6. In contrast, voice development from anticausative to passive with no involvement of reflexivity has received little attention in the literature and examples of the phenomenon are rare. A clear case of the development can be found in Korean (EA) as further discussed below.

As described by Ahn & Yap (2017), the suffix *-aci/-eci* in Korean has a number of functions, most notably "spontaneous middle" (anticausative), inchoative, passive, and "facilitative" (potential passive). According to Ahn & Yap the suffix is ultimately derived from the verb *ti-* 'to fall, sink' which underwent a process of grammaticalization starting in the 15th century and developed an anticausative function when preceded by the infinitival suffix *-a/-e* (id.: 444ff.). During the 17th century the initial consonant of the grammaticalised suffix *-ti* underwent palatalisation and the innovative suffix *-aci/-eci* developed an inchoative function (id.: 446ff.). In the following century the aforementioned suffix subsequently developed a passive function as well (id.: 451ff.). This development is illustrated in figure 33 below; note that *-acy/-ecy* are simply phonologically conditioned allomorphs of *-aci/-eci* (id.: 446). In the figure the 15th century represents Middle Korean and the 17th and 18th centuries represent Early Modern Korean, yet each of the three functions remain productive in contemporary Korean (id.: 459). A potential passive function mentioned above did not evolve until the 20th century and is not covered by the figure below (id.: 448ff.).

Figure 33. Passive-anticausative syncretism of anticausative origin in Korean

15th century:	*ti-* 'to fall, sink'			
	↓			
	-e/-a + -ti	*sot-a-ti-*	'to pour away'	ANTC
	↓		(cf. *sot-* 'to pour sth. out')	↓
17th century:	*-aci/-eci*	*palk-acy-*	'to become bright'	↓ INCH
	⋮		(cf. *palk-* 'to be bright')	↓ ↓
18th century:	⋮	*mwunh-ecy-*	'to be destroyed (by sb.)'	PASS
			(cf. *mwunh-* 'to destroy sth.')	

Ahn & Yap (2017) argue that "[e]ssentially, extended uses of *-eci* from intransitive verb contexts to transitive ones gave rise to passive voice usage," and highlight the inchoativity illustrated above as a facilitating factor in the process: "[t]he semantic

property that links the inchoative middle with the passive is the complete lack of volitional initiation by the subject, which in both inchoative and passive constructions is the Patient of the event" (id.: 451). In more general terms, Haspelmath (1990) notes that the passive essentially is a "generalization of the anticausative in that it is not restricted to spontaneously occurring processes" but comes to feature an additional semantic participant (id.: 45).

7.3.4 From anticausative to antipassive

There is currently no clear evidence for a development from anticausative to antipassive. Note that Haspelmath (2003) tentatively links the two voices to each other (id.: 225) but also explicitly states that "diachronic data are insufficient" to propose such a semantic change. Nevertheless, it might be worth mentioning here that the Eastern Sudanic language Majang (AF) in the language sample of the present study features antipassive-anticausative voice marking with no other apparent functions; this marking was discussed and illustrated in §4.2.3 (vid. exx. 182-186 p. 117). Unfortunately, however, there is currently not enough data available to establish the diachrony of the antipassive-anticausative syncretism in the said language.

7.4 Passive origin

Evidence for voice syncretism of passive origin is sparse, and the literature equally so. Nevertheless, in the following sections it will be demonstrated that there is some evidence suggesting that passive voice marking can develop a reflexive, reciprocal, or anticausative function, as discussed in following sections.

7.4.1 From passive to reflexive

Discussions of a potential passive origin for passive-reflexive syncretism in the literature seem to be restricted to a single language, the Uto-Aztecan language Tarahumara (NA), in which the "passive-impersonal" suffix *-ru* "has extended to reflexive use" according to Langacker & Munro (1975: 803); see also, e.g., Anderson et al. (1976: 18) and Dik (1983: 252). The suffix in question derives from the Proto-Uto-Aztecan copula **-tu* 'to become,' and Langacker & Munro remark that this

original use is also retained in Tarahumara but provide no examples thereof (id.: 798). The purported diachronic development of the suffix in Tarahumara is illustrated in figure 34 below. Nevertheless, it should be noted that Langacker & Munro only provide three verbs as evidence for their claim (the two verbs in the aforementioned figure in addition to the impersonal verb *gočí-ru* 'one sleeps;' ibid.), and it is unclear how widespread and productive the reflexive function of the suffix *-ru* is.

Illustratively, the passive and impersonal functions of the suffix *-ru* are covered by Caballero (2008) for Choguita Tarahumara and by Jara (2013) for Urique Tarahumara but neither author mentions any reflexive use. In the closely related language River Warihio the suffix *-tu* (also reflecting Proto-Uto-Aztecan **-tu*) does not appear to have any reflexive use either (Armendáriz 2006). Burgess (1984: 32) characterises the suffix *-ru* in Western Tarahumara as "PASS/IMPERS/STAT/REFL/APPLIC" but provides no reflexive example nor discusses the functionality of the suffix further. Consequently, although Tarahumara remains a candidate for passive-reflexive syncretism of passive origin, the matter remains unresolved for the time being until more data becomes available.

Figure 34. Passive-reflexive syncretism of passive origin in Tarahumara

Proto-Uto-Aztecan	*-*tu* 'to become'			
	↓	PASS	→	REFL
Tarahumara	*-ru*	*ʔa-ru* 'to be given sth. [by sb.]'		*pago-ru* 'to wash oneself'

Another – perhaps better – candidate for passive-reflexive syncretism of passive origin is the Lowland East Cushitic language Ts'amakko (AF) in which the suffix *-am* can serve as voice marking in both the passive and reflexive voices (Savà 2005: 207ff.). As discussed in more detail in the next section, the suffix in question can be traced back to Proto-East-Cushitic **-am* for which an original passive function has been reconstructed (Hayward 1984). The presumed development from passive to reflexive is illustrated in figure 35 below. Note that the suffix *-om* is "probably historically" composed of the inceptive suffix *-aw* and the passive suffix *-am* (Savà

2005: 198). It has hitherto not been possible to find a similar reflexive function for reflexes of the Proto-East-Cushitic suffix *-*am* in other East Cushitic languages.

Figure 35. Passive-reflexive syncretism of passive origin in Ts'amakko

Proto-East-Cushitic	*-*am*			
	↓	PASS	→	REFL
Ts'amakko	*-am*	*q'aq'-am*		*šiin-am-* 'to smear oneself'
		'to be cut [by sb.]'		*šuɗ-am-* 'to cover (i.e. dress) oneself'
				(*šooh-om-* 'to wash oneself')

It is worth noting that Savà (2005) also provides two examples of the Ts'amakko suffix *-am* which seem to qualify as anticausative; i.e. *bul-* 'to separate sth.' ↔ *bul-am-* 'to separate' (in the sense 'to go separate ways;' id.: 208), *ɠonɗ-am-* 'to break' (id.: 242f.; cf. *ɠonɗ-* ʔ'to break sth.;' id.: 257). Thus, it is possible that the development from passive to reflexive has been facilitated in part by anticausativity. In that case, the diachrony of passive-reflexive syncretism in Ts'amakko would present a reverse version of the diachronic path from reflexive to passive facilitated by anticausativity discussed in §7.1.3 and generally assumed for Indo-European languages (§7.1).

7.4.2 From passive to reciprocal

Diachronic development from passive to reciprocal does not seem to have received any prior treatment in the literature. However, as briefly mentioned in §7.2.3, such development appears to have taken place in one language included in the language sample of the present study, the Highland East Cushitic language Sidaama (AF). As illustrated in §5.1, the suffix *-am* in this language serves as voice marking in the passive and anticausative voices. Hayward (1984: 97) observes that cognates of this suffix can be found "in nearly every Eastern Cushitic language," mainly with a passive function, and goes on to reconstruct a "passive neuter extension" suffix *-*am* for Proto-East-Cushitic.

In some descendant languages reflexes of the suffix additionally have a marginal anticausative function, as also noted implicitly by Hayward (id.: 98), including

Sidaama; and even a reflexive function in one language, Ts'amakko, as described in the previous section. By contrast, passive-reciprocal type 1 syncretism is apparently only attested in Sidaama, although passive-reciprocal type 2 syncretism can be found the related languages Hadiyya, Alaaba, and K'abeena. For comparative purposes, the expression of passivity and reciprocity is illustrated in these five languages and seven other East Cushitic languages in table 34 below. The suffix *-akk'* is an innovative "middle" suffix (Hayward 1984: 90) with mainly autobenefactive and reflexive uses when used on its own (see Schneider-Blum 2007: 312ff. on Alaaba and Crass 2005: 141ff. on K'abeena).

Table 34. Passivity and reciprocity in East Cushitic languages

		PASS	RECP	
Highland	Sidaama	*-am*	*-am*	(Kawachi 2007)
	Hadiyya	*-am*	*-am-am*	(Sibamo 2015)
	Alaaba	*-am*	*-akk'-am*	(Schneider-Blum 2007)
	K'abeena	*-am*	*-akk'-am*	(Crass 2005)
	Burji	*-am*	[PERIPH.]	(Assefa 2015)
Lowland	Ts'amakko	*-am*	?	(Savà 2005)
	Konso	*-am*	[PERIPH.]	(Orkaydo 2013)
	Bayso	*-am*	[PERIPH.]	(Kebebew 2018)
	Girirra	*-am*	*isi-*	(Mekonnen 2015)
	Oromo	*-am*	*wal-*	(Teferi 2019)
	Saaho	*-(V)m*	[PERIPH.]	(Tajebe 2015)
	Afar	*-(V)m*	[PERIPH.]	(Kamil 2005)

Considering the distribution of the passive and reciprocal functions of Proto-East-Cushitic **-am* in descendant languages, the reciprocal function of the Sidaama suffix *-am* likely evolved from the passive function. This diachronic development is illustrated in figure 36 below (Kawachi 2007: 334, 342). This figure also includes the passive-reciprocal type 2 syncretism found in Hadiyya, Alaaba, and K'abeena (Sibamo 2015: 75 on Hadiyya; Schneider-Blum 2007: 310, 321 on Alaaba; Crass 2005: 143, 145 on K'abeena).

Figure 36. Passive-reciprocal syncretism of passive origin in Eastern Cushitic

Proto-East-Cushitic	**-am* ↓	PASS	→	RECP
Sidaama	*-am*	*gan-am-* 'to be hit [by sb.]'		*gan-am-* 'to hit e.o.'
Hadiyya	[*-am*]*-am*	*gan-am-* 'to be hit [by sb.]'		*gan-am-am-* 'to hit e.o.'
Alaaba	[*-akk'*]*-am*	*hog-am-* 'to be cleaned [by sb.]'		*ʔiitt-akk'-am-* 'to love e.o.'
K'abeena	[*-akk'*]*-am*	*mur-am-* 'to be cut [by sb.]'		*leʾ-akk'-am-* 'to see e.o.'

The manner in which the passive voice marking in Sidaama developed its reciprocal functions is not entirely clear, and information from related languages do not seem to shed much light on the issue either. However, it is worth noting that the passive and reciprocal voices both involve semantic referents being acted upon by others, but in the reciprocal voice the said referents themselves also act upon others unlike in the passive voice. It seems that the referents in the passive voice apparently gained the aforementioned capability. Moreover, it might be noted here that the suffix *-am* in Sidaama also has a "very limited" iterative meaning (Kawachi 2007: 344) which might link it to plurality of relations and thereby to reciprocity (§7.2). Finally, note that the language possesses a lexicalised verb *šarr-am-* 'to wrestle' which cannot be used without the suffix *-am* (ibid.), and one can hypothesise that the reciprocal function of the said suffix might have first evolved with lexically reciprocal verbs; e.g. *šarr-am-* 'to be wrestled by sb.' → 'to be wrestled by sb. and thereby wrestle that person' → 'to wrestle e.o.' and by extension → *gan-am-* 'to hit e.o.'

7.4.3 From passive to anticausative

Voice development from passive to anticausative has received slightly more attention than the diachronic developments addressed in the preceding two sections. For instance, Malchukov & Nedjalkov (2015) have argued for such development among certain Tungusic languages. As discussed in more detail later in §7.5.2, it is well-known that the Proto-Tungusic causative suffix **-bu/-wu* has developed a passive function in many descendant languages. Additionally, some reflexes of the suffix have even developed an anticausative function, albeit a marginal one, for instance the Evenki reflex *-v*. Malchukov & Nedjalkov suggest that the anticausative function

developed via the passive function given the overall distribution of the various functions among the Tungusic languages (id.: 611). This development is illustrated by examples from the abovementioned language Evenki in figure 37 below (Malchukov & Nedjalkov 2015: 608f.). It is worth noting, however, that the causative function has been retained alongside the passive function, for which reason the development might be described more precisely in terms of causative-passive voice marking developing an anticausative function.

Figure 37. Passive-anticausative syncretism of passive origin in Evenki

Proto-Tungusic	**-bu/-wu*			
	↓	PASS (+ CAUS)	→	ANTC
Evenki	*-v*	*oo-v-* 'to be built [by sb.]' (cf. *suru-v-* 'to lead sb. away')		*sukča-v-* 'to break'

Furthermore, Kulikov (2011b) has hypothesised that a development from passive to anticausative has taken place in the extinct Indo-European language Vedic Sanskrit as well. In fact, Kulikov (2011b) argues that evolution from "passive to anticausative through impersonalization" is "not infrequent – in particular, in a number of Indo-European languages," but that "the passive to anticausative transition is only rarely explicitly mentioned in grammars and has not received due attention in the literature" (id.: 232). Kulikov goes on to exemplify and discuss a "clear instance of such development" (ibid.) in Vedic Sanskrit, in which the suffix *-yá* with a supposedly original passive function has evolved an anticausative function with some verbs. In his discussion of the said development, Kulikov focuses primarily on verbs of perception, including those listed below (548-550). In these examples the original (a) meanings of the respective verbs are passive, while the later (b) meanings are anticausative according to Kulikov: "[t]he non-passive usages of the passives derived from verbs of perception of the type 'is seen' → 'is visible; appears' represent the commonest instance of passive to anticausative transition, and can probably be found in most languages with passives" (id.: 234; see also id.: 249).

Vedic Sanskrit (Kulikov 2011b: 234–241)

548.	*dṛś-*	‘to see sth.’	↔	*dṛś-yá-*	a. ‘to be seen’	b. ‘to be visible, appear’
549.	*śrū-*	‘to hear sth.’	↔	*śru-yá-*	a. ‘to be heard’	b. ‘to be audible, famous’
550.	*vid-*	‘to find sth.’	↔	*vid-yá-*	a. ‘to be found’	b. ‘to be findable, exist’

Although Kulikov’s (2011b) discussion of passive to anticausative evolution focuses almost entirely on Vedic Sanskrit verbs of perception like those in (548-550), it is worth noting that the purported anticausative function (b) of the suffix *-yá* in relation to these verbs is not acknowledged in the present study. As described in §2.2.4, an anticausative voice is defined in contrast to a diathesis in which an additional semantic participant not found in the anticausative voice is a causer; there is no such additional semantic participant in Kulikov’s examples (in such a case the contrasting meaning of 548b would have been ‘to make sb. be visible’). Nevertheless, Kulikov also addresses the verb of speech *vac-* ‘to pronounce sth.’ (i.e. ‘to sound sth.’) at some length (551), as well as a few verbs of “causation of motion” in brief, and the suffix *-yá* can indeed have an anticausative function with these verbs (551-553). Kulikov remarks that the anticausative function of the verbs “could further be supported by the influence of the middle non-passive presents with the suffix *-ya-* and root accentuation […] derived from some verbs of motion” (554-557); these qualify as indeterminate causative-anticausative voice relations in the present study.

Vedic Sanskrit (Kulikov 2000: 202f.; 2007: 713; 2008: 168; 2011a: 318; 2011b: 241ff., 244ff.; 2017: 388; Kulikov & Lavidas 2017: 302)

551.	*vac-*	‘to sound sth.’	↔	*uc-yá-*	‘to sound’
552.	*sic-*	‘to pour sth.’	↔	*sic-yá-*	‘to pour (out)’
553.	*kṝ-*	‘to scatter sth.’	↔	*kīr-yá-*	‘to scatter’
554.	*pād-áya-*	‘to fell sth.’	↔	*pád-ya-*	‘to fall’
555.	*ri-ṇā́-*	‘to whirl sth.’	↔	*rī́-ya-*	‘to whirl’
556.	*pṛ-ṇā́-*	‘to fill sth.’	↔	*pū́r-ya-*	‘to fill’
557.	*kṣi-ṇā́-*	‘to perish sth.’	↔	*kṣī́-ya-*	‘to perish’

Note that the difference in accentuation of the suffix (*-yá* vs. *-ya*) in examples (551-557) has been the topic of much debate in its own right, but a detailed treatment of accentual differences goes beyond the scope of this discussion. Kulikov (2011b)

focuses specifically on the development of *-yá* and its functions, but also briefly acknowledges a "passive to anticausative transition" for the suffix *-ya* (id.: 246). Kulikov ultimately argues that the anticausative function arose from the passive function through four stages: (i) "canonical" passive → (ii) "agentless" passive → (iii) "impersonalized" passive → (iv) anticausative (id.: 248). According to Kulikov, the difference between the second and third stages lies in the nature of the omitted agent: in the "agentless" passive it is non-generic, and in the "impersonalized" passive it is generic. In other words, non-absolute passive → absolute passive with non-generic agent → absolute passive with generic agent → anticausative.

Hock (2019) has recently taken a more cautious stance on the matter, arguing that "with a few exceptions the Vedic evidence makes it difficult to decide on the directionality" of the said development (id.: 182) due to the "systematic ambiguity between passive and anticausative interpretation" of the suffix *-yá* (and *-ya*). Hock instead speculates that "the distinction between passive and anticausative is secondary" (id.: 188). More specifically, Hock argues that "no distinctly passive or anticausative functions can be reconstructed for the PIE verbs in **-ye/o-*" from which Vedic Sanskrit *-yá* (and *-ya*) descend; consequently, "the ancestors of our passive/anticausative verbs originally only had undifferentiated intransitive function" (id.: 189). In other words, "passive or anticausative readings would have been a matter of pragmatics" and "[o]nly in later Vedic would some forms of this type acquire unambiguous anticausative (or passive) functions" (id.: 188f.). Finally, Hock comments that "[u]nder such near-systematic conditions of structural ambiguity, it is possible that different speakers preferred different accounts, whether for all relevant verbs, for subsets […] or even individual verbs, in individual contexts" (id.: 190). Nevertheless, Hock does not reject the possibility of a passive to anticausative development altogether, noting that at least in relation to late Vedic Sanskrit developments such voice change "seems to be more appropriate" than an anticausative to passive development.

As noted in the beginning of this section, Kulikov (2011b: 232) considers a voice development from passive to anticausative "not infrequent" cross-linguistically, yet addresses only Vedic Sanskrit, Old Church Slavonic, Greek, and Latin (id.: 246ff.). Kulikov's examples of such development in Old Church Slavonic and Greek involve

verbs of perception ('see' and 'hear,' respectively), none of which qualifies as anticausative in the present study (cf. the discussion of the Vedic Sanskrit examples 548-549 in the beginning of this section). In Latin some verbs marked by one of several suffixes generally associated with passivity can indeed have an anticausative function (for a list of exemplificative verbs, see D. G. Miller 1993: 227), yet it remains unresolved whether or not this function is a vestige of the Proto-Indo-European middle suffixes from which the Latin suffixes derive, as Kulikov (2011b: 247) also notes.

7.5 Causative origin

Prospects of a causative origin for voice syncretism is normally associated with causative-passive as well as causative-applicative syncretism and, as shown in §7.5.2 and §7.5.3, there is indeed much evidence for such diachrony. Interestingly, as demonstrated in the next section, some evidence indicates that causative voice marking can also develop an anticausative function.

7.5.1 From causative to anticausative

Diachronic development from causative to anticausative has been the focus of little research, but sporadic evidence for the phenomenon can be found in a few Eurasian languages. For instance, as mentioned in §7.4.3, the Proto-Tungusic causative suffix **-bu/-wu* has developed an anticausative function in some descendant languages (cf. Evenki *-v*), likely facilitated by passivity. Moreover, there seems to be some evidence pointing toward a causative origin for causative-anticausative syncretism characterised by the suffix *-ke* in the language isolate Ainu (cf. exx. 292-297 p. 140). As briefly noted in §3.2.4, Nonno (2015) suggests that the aforementioned suffix can be traced back to the verb **ki* 'to do, perform, act' which suggests a causative rather than an anticausative origin. Finally, Yap & Ahn (2019) have argued for a causative origin of the causative-anticausative syncretism characterised by the suffix *-(C)i* in Korean (cf. exx. 480-481, 484-485 p. 171). This case is described below.

According to Yap & Ahn (2019), the Korean suffix *-(C)i* has an attested causative function dating back at least to the 10th century (id.: 3ff.) whence an anticausative function evolved around the 15th century (id.: 9f.). This diachronic development is

illustrated in figure 38 below. Observe that the same suffix also developed a passive function around the same time as the anticausative function (see the next section), but Yap & Ahn believe that both functions evolved concurrently from the causative function through a "causative-to-passive pathway" (id.: 18f.) and "causative-to-middle pathway" (id.: 16ff.), respectively. The origin of the suffix *-(C)i* itself is "largely unknown" though it may be related to the "proximal demonstrative *i* ('this') and a defective noun *i* ('person')" (id.: 20). Both the causative and the anticausative functions remain productive in contemporary Korean (id.: 10).

Figure 38. Causative-anticausative syncretism of causative origin in Korean

10th century:	*-(C)i*	*nep-hi-*	'to widen sth.'	(cf. *nep-* 'to be wide')	CAUS
	⋮				↓
15th century:	⋮	*tat-hi-*	'to close'	(cf. *tat-* 'close sb.')	ANTC

Yap & Ahn (2019) argue that the development from causative to anticausative in Korean "boil[s] down to shifts in perspective-taking" and hypothesise that so-called "reflexive causative *-i* constructions in Korean that involve bodily actions such as 'scratching oneself' […] provide a bridging context for causative *-i* constructions to develop into middle [incl. anticausative] *-i* constructions" (id.: 17); e.g. *kulk-* 'to scratch sth.' (id.: 8) → *kulk-hi-* 'to make sb. scratch a body part' (id.: 18) → 'to make sb. scratch self' (id.: 17). Yap & Ahn suggest that the last stage came about through the elision of the body part being scratched "for reasons of politeness or discretion" (ibid.). Nevertheless, this scenario does not explain the absence of causation in the anticausative voice (cf. *tat-hi-* 'to close,' not *'to make sth. close itself'). Elsewhere Yap & Ahn also hint at causer elision in passing (ibid., id.: 10) which itself can serve as an alternative explanation for the development from causative to anticausative; e.g. 'the porter closed the gate' → '(someone or something) closed the gate' → 'the gate closed.'

7.5.2 From causative to passive

Alongside voice syncretism of reflexive origin, causative-passive syncretism of causative origin is one of the most discussed diachronic developments of voice

syncretism in the literature (e.g. Haspelmath 1990: 46ff.; Washio 1993; Knott 1995; Yap & Iwasaki 1998, 2003; Robbeets 2007, 2015; Ahn & Yap 2017; Yap & Ahn 2019; Zúñiga & Kittilä 2019; i. a.). By contrast, it has hitherto not been possible to find any attestation of passive voice marking developing a causative function. Causative-passive syncretism of causative origin has most notably been proposed for several languages of Eurasia which will be described here. For instance, as mentioned in the preceding section, the Korean suffix *-(C)i* which historically had a causative function developed a passive function around the 15th century (Yap & Ahn 2019: 11f.). This development is illustrated in figure 39 below.

Figure 39. Causative-passive syncretism of causative origin in Korean

10th century:	*-(C)i*	*nep-hi-*	‘to widen sth.’	(cf. *nep-* ‘to be wide’)	CAUS
	⋮				↓
15th century:	⋮	*cap-hi-*	‘to be caught [by sb.]’	(cf. *cap-* ‘to catch sb.’)	PASS

Causative-passive syncretism of causative origin has also famously been described for the Tungusic languages mentioned in the preceding sections in which the Proto-Tungusic verb **bu-* or **böö-* ‘to give’ is believed to have grammaticalised into the suffix **-bu/-wu* with a causative function which later developed a passive function (von der Gabelentz 1861: 518; Haspelmath 1990: 48; Nedjalkov 1993; Yap & Iwasaki 1998: 194ff.; Malchukov & Nedjalkov 2015: 608ff.; i.a.). This development is illustrated below in figure 40 (Nedjalkov 1991: 5; 1993: 194 on Manchu; Paiyu 2013: 117, 188f. on Kilen).

Figure 40. Causative-passive syncretism of causative origin in Tungusic

Proto-	**bu-* or **böö-* ‘to give’				
Tungusic	↓				
	**-bu/-wu*				
	↓		CAUS	→	PASS
Manchu	*-bu*	*va-bu-*	‘to kill sb.’		‘to be killed [by sb.]’
Kilen	*-wu*	*tanta-wu*	‘to hit sb.’		‘to be hit [by sb.]’

Another rather clear example of voice development from causative to passive comes from Mongolic languages. Janhunen (2003b: 11) reconstructs a passive suffix (i.e. **-dA/-tA/-gdA*) and three causative suffixes (i.e. **-gA/-kA/-xA*, **-lgA*, **-xUl*) for Proto-Mongolic that have largely been retained alongside their original functions in descendant languages (vid. Janhunen [ed.] 2003a), though the passive has been lost in many Southern Mongolic languages (cf., e.g., Field 1997 on Santa Mongolian, Slater 2003 on Mangghuer, Fried 2010 on Bao'an Tu). In a few Mongolic languages causative voice marking has developed a passive function, e.g. Mongolian causative-passive *-UUl* reflecting Proto-Mongolic **-xUl* (Svantesson 2003: 172; cf. exx. 233-235 p. 130). This development in Mongolian is illustrated in figure 41 below (Janhunen 2010: 250).

Figure 41. Causative-passive syncretism of causative origin in Mongolian

Proto-Mongolic	**-xUl*				
	↓		CAUS	→	PASS
Mongolian	*-UUl*	*id-uul*	'to make/let sb. eat sth.'		'to be eaten [by sb.]'

Causative-passive syncretism can also be found in the Uralic language family in which the Proto-Uralic causative suffix **-t* (Collinder 1969: 278f.) or *-tä/-tå* (Janhunen 1982: 33) has developed a passive function in at least two Finno-Ugric languages, the Ugric language Hungarian (Haspelmath 1990: 48; Tankó 2016, 2017) and the Finnic language Finnish; in these languages the reflexes of the proto-suffix are *-(t)et/-(t)at* and *-ta/-tä*, respectively. This development is illustrated in figure 42 below. For the sake of convenience, the Proto-Uralic, Hungarian, and Finnish suffixes are here given as **-tV*, *-(t)Vt*, and *-tV*. Note that the passive function of Hungarian *-(t)Vt* is obsolete in the modern language, and the passive example in Hungarian in the figure thus represents an archaic use. Also note that the Finnish suffix is obligatorily accompanied by the suffix *-an/-än* in the passive voice (i.e. causative-passive type 2 syncretism).

Figure 42. Causative-passive syncretism of causative origin in Finno-Ugric

Proto-Uralic	**-tV*			
	↓	CAUS	→	PASS
Hungarian	*-(t)Vt*	*vár-at-* 'to make sb. wait'		*ad-at-* 'to be given [by sb.]'
Finnish	*-tV*	*alen-ta-* 'to lower sth.'		*lue-ta-an* 'to be read [by sb.]'

Haspelmath (1990: 48) observes that a similar development may have taken place in the Indo-Aryan language Gujarati where the passive suffix *-ā* perhaps descends from the suffix *-āya* (Masica 1993: 317) which is believed to have had a causative function (Kulikov 2009: 84). A causative origin for causative-passive syncretism has also often been proposed for Turkic languages in some of which cognates of the suffix *-t* can serve as voice marking in both the causative and passive voices (Haspelmath 1990: 48; Robbeets 207: 178f.; 2015: 290ff.). However, note that Robbeets reconstructs an "original causative-passive suffix" **-ti* for Proto-Turkic (ibid.), suggesting that the syncretism was already present in the proto-language, and the further diachrony of the suffix remains obscure.

Outside of Eurasia it has only been possible to find one case of causative-passive syncretism for which a causative origin can be established with some certainty. More specifically, it has been repeatedly observed that the causative suffix *-tit* in the Eskimo language West Greenlandic seems to have developed a passive suffix rather recently (Fortescue 1984: 265; Haspelmath 1990: 48; Schikowski 2009: 7). This development is shown in figure 43 below (Underhill 1980: 475f.).

Figure 43. Causative-passive syncretism of caus. origin in West Greenlandic

	CAUS	→	PASS
neri-tit-	'to make sb. eat sth.'		'to be eaten [by sb.]'

Voice change from causative to passive is generally hypothesised to involve a "causative-reflexive" or "reflexive permissive-causative" intermediary stage whereby a causer lets itself be acted upon by another semantic participant, and subsequently loses its focus of attention before it eventually does not cause anymore (Underhill 1980: 476f.; Shibatani 1985: 840; Haspelmath 1990: 46f.; Yap & Iwasaki 1998; Yap

& Ahn 2019; Zúñiga & Kittilä 2019: 226; i.a.). In broader terms, the causative voice can be said to share "the feature of A-demotion with passives" (Malchukov 2017: 24).

7.5.3 From causative to applicative

Like the voice diachrony addressed in the preceding section, the origin of causative-applicative syncretism has received considerable attention in the literature (e.g. Shibatani & Pardeshi 2001: 166ff., 2002: 116ff.; Peterson 2007: 64ff.; Malchukov 2016: 403ff., 2017: 13ff.; i. a.). However, as noted by Zúñiga & Kittilä (2019: 236), "the border between causativization and applicativization is porous" and it can therefore be difficult to determine the origin of causative-applicative syncretism. Indeed, it can sometimes be difficult to distinguish between a causative and an applicative function in the first place, as certain situations can be conceptualised in different manners. Illustratively, Austin (2005) treats the verb *iti-nti* 'to bring sth. back' (cf. *iti* 'to return') in the Northern Pama-Nyungan language Kalkatungu as causative (id.: 14), but the verb *gambira-ma-* 'to bring sth. back' (cf. *gambira-* 'to return') in the related language Margany (both AU) as applicative (id.: 17). Here it seems that Austin has conceptualised the verbs 'to make sth. return' and 'to return with sth.,' respectively. In any case, causative-applicative syncretism is often believed to generally have a causative origin (especially following Shibatani & Pardeshi 2001, 2002), although the possibility of an applicative origin is sometimes acknowledged as well (e.g. Wise 1990, Payne 2002, Guillaume & Rose 2010, Malchukov 2017). Causative-applicative syncretism of causative origin is discussed in this section, while causative-applicative syncretism of applicative origin is addressed in §7.6.3.

Shibatani & Pardeshi (2001, 2002) have famously argued for a causative origin of causative-applicative syncretism suggesting that "the applicative meanings of comitative, instrumental, and benefactive forms be connected to sociative causatives" (id.: 118). For instance, "[t]he comitative meanings of 'I walk with him' and 'I play with her' are derivable from 'I make him walk by walking with him' and 'I make her play by playing with her'" (ibid.). Likewise, "[i]f someone causes a knife to cut the meat, he/she is in effect cutting the meat with a knife, because a knife cannot cut meat independently from the causer agent who actually uses it" (id.: 119). In support of their argument (id.: 116–122), Shibatani & Pardeshi cite examples of causative-

applicative syncretism from sixteen geographically diverse languages (representing sixteen different genera). The simple and logical explanation hypothesised by Shibatani & Pardeshi is certainly plausible in many languages (and will be addressed again at the end of this section), yet it is important to note that there is little historical and comparative data available for most of the languages they discuss.

Indeed, some of the authors of the sources cited by Shibatani & Pardeshi (2001, 2002) do not address diachrony at all, including Saunders & Davis (1982) on the Salishan language Bella Coola (NA), Plungian (1993: 392) on the Dogon language Tommo So (AF), and Ichihashi-Nakayama (1996) on the Yuman language Hualapai (NA). Consequently, in many cases it cannot be confirmed with certainty how the causative-applicative syncretism in the languages arose diachronically, and alternative origins cannot automatically be dismissed. As already mentioned above and further discussed in the next section, the opposite development seems to have taken place in some languages, even in cases involving sociativity. Thus, the diachrony of the causative-applicative syncretism in each of the remaining thirteen languages mentioned by Shibatani & Pardeshi (2002) is reviewed below.

Some authors of the sources cited by Shibatani & Pardeshi (2002) explicitly note that the origin of causative-applicative syncretism in a given language may not necessarily be causative. For instance, Fleck (2002: 396) argues that "we must conclude that [the causative-applicative suffix] *ua* was not specifically a causativizer, but a more general transitivizer" in the Panoan language Matsés (SA). Likewise, Stefanowitsch (2002: 344) calls the causative-applicative suffix *-ba* in the Cariban language Akawaio (SA) a "general transitivizer." In turn, Queixalós (2002) suggests that the causative-applicative prefix *ka-* in the Guahiban language Sikuani (SA) has an applicative origin as further discussed in the next section. Additionally, observe that Vázquez Soto (2002) does not provide any concrete diachronic evidence for the origin of causative-applicative syncretism in the Corachol language Cora (NA) but presupposes a causative origin (id.: 228) in the spirit of Shibatani & Pardeshi (2002).

The origins of causative-applicative syncretism in the Kartvelian Svan (EA) and the Pama-Nyungan language Yidiny (AU) also remain obscure (Kulikov 1993 and Austin 2005, respectively); causative-applicative syncretism among Australian languages is addressed in more detail further below. Furthermore, the origin of the

causative-applicative suffix *-kan* mentioned by Shibatani & Pardeshi (2002) for the Malayo-Sumbawan language Malay (PN) has been the topic of much debate; Kikusawa (2012: 438) believes it to be descended from an "oblique preposition **kən*, which introduced adjunct (or, peripheral) elements of the event described in a sentence." Kikusawa proposes that the preposition has grammaticalised in Proto-Malay(ic), in which the suffix **-kən* appears to have had both applicative and causative uses (id.: 439); the chronology of the individual functions remains unclear.

By contrast, there are some stronger indications of a causative origin for causative-applicative syncretism in the remaining six languages mentioned by Shibatani & Pardeshi (2002). For instance, the suffix *-aw* in the Indo-Aryan language Marathi and the suffix *-(sa)se* in Japanese (both EA) generally have a causative function, but also sociative functions in certain restricted contexts (id.: 96ff.). The more restricted applicative function of the aforementioned suffixes seems to indicate a later development from the causative function. The same can be said for the Muskogean language Creek (NA) as well as Huallaga Quechua (SA)[29] and Kolyma Yukaghir (EA), in which the applicative function of the otherwise causative suffixes *-ic* (Martin 2011: 225), *-chi* (Weber 1989: 163), and *-š* (Maslova 2003: 215), respectively, are barely productive. It is, however, worth keeping in mind that a high synchronic productivity of a certain function does not necessarily entail that the said function represents a diachronic origin, as already noted in the beginning of this chapter.

The best evidence for causative-applicative syncretism of causative origin mentioned by Shibatani & Pardeshi (2002) comes from the Bantu language Kinyarwanda (AF) in which the causative-applicative suffix *-ish* can be traced back to the Proto-Bantu causative suffix **-ici* which contrasted with a general applicative suffix **-ɪd* (Meeussen 1967, Bastin 1986, Schadeberg 2003). For a more recent and extensive investigation of the said syncretism in Kinyarwanda, see Jerro (2017). A similar development has also taken place in, e.g., the related Namibian Fwe language and "other Bantu Botatwe languages" (Gunnink 2018: 216ff.); see also Peterson

[29] Note that Shibatani & Pardeshi (2002) do not explicitly mention which Quechuan language they discuss, but it is here believed to be Huallaga Quechua because this language is mentioned repeatedly elsewhere in the book in which their study is published (cf. Shibatani [ed.] 2002).

(2007: 66) on Shona and Creissels (2016: 90) on Tswana. The development from causative to applicative among these languages is illustrated by examples from Kinyarwanda and Namibian Fwe in figure 44 below (Jerro 2017: 6f. on Kinyarwanda; Gunnink 2018: 216f. on Namibian Fwe).

Figure 44. Causative-applicative syncretism of applicative origin in Bantu

Proto-Bantu	*-*ici*			
	↓	CAUS	→	APPL
Kinyarwanda	*-ish*	*ndik-ish-* 'to make sb. write sth.'		*kat-ish-* 'to cut sth. with sth.'
Namibian Fwe	*-is*	*kur-is-* 'to make sb. sweep sth.'		*fund-is-* 'to cut sth. with sth.'

Guillaume & Rose (2010: 391) argue that six other languages from four South American genera not covered above also feature causative affixes which in some contexts can have a sociative causative function like that described by Shibatani & Pardeshi (2002); Tupi-Guaraní (Guaraní), Bolivia-Parana Arawakan (Trinitario), Pre-Andine Arawakan (Asheninka and Caquinte), and Cariban (Kari'ña and Makushi). The functions are supposedly characterised by the prefix *mo-* in Guaraní, the prefix *im-* in Trinitario, the suffix *-akag* in Asheninka, the suffix *-aka* in Caquinte, the suffix *-nopï* in Kari'ña, and the suffixes *-nîpî* and *-pa* in Makushi.

It is unclear how common the sociative causative function is in Guaraní and Trinitario though; only one example of the said function is provided by Velázquez-Castillo (2002: 522) for the former language and by Wise (1990: 98) for the latter language. Note that Proto-Tupi-Guaraní otherwise seems to have had a "comitative causative" prefix **(e)ro-* (Jensen 1998: 593); this prefix is retained and characterises causative-applicative syncretism in Emerillon (cf. *elo-*) which is included in the language sample of the present study. The Asheninka and Caquinte suffixes can be traced to the Proto-Arawakan suffix **-k^hak^h* for which Wise (1990: 109) reconstructs an original reciprocal function, as also already noted in §7.2.1. Wise additionally shows that the suffix also has developed causative and comitative applicative functions in a few other neighbouring languages (id.: 104, 110), and ultimately argues that the causative function evolved from the comitative applicative function and not vice versa. This development is discussed in the next section.

The Cariban languages appear to be better candidates for causative-applicative syncretism of causative origin in light of Gildea's (2015: 6ff.) reconstruction of three causative suffixes with no apparent applicative functions for Proto-Carib: *-*po* (cf. Makushi -*pa*), *-*nɨpɨ* (cf. Makushi -*nîpî*), and *-*nôpɨ* (cf. Kari'ña -*nopï*). The presumed development from causative to applicative in these languages is illustrated by examples from Makushi in figure 45 below (Abbott 1991: 41, 125f.).

Figure 45. Causative-applicative syncretism of applicative origin in Makushi

Proto-Carib	*-*po*		
	↓	CAUS →	APPL
Makushi	-*pa*	*we'nun-pa* 'to make sb. sleep'	*manun-pa* 'to dance with sb.'
	-*nîpî*	*ereuta-nîpî* 'to sit sth. down'	*erepan-nîpî* 'to arrive with sb.'
	↑		
Proto-Carib	*-*nɨpɨ*		

Austin's (2005) investigation of causative-applicative syncretism among Australian languages is often cited in discussions on the diachrony of the said syncretism, but is worth observing that Austin strives to provide a "theoretical analysis of the observed patterns of transitivisation in Australia, couched in terms of the framework of lexical mapping theory in Lexical Functional Grammar" (id.: 29) based on synchronic data. In contrast, the diachronic developments of the causative-applicative syncretism in the individual languages addressed by Austin remain largely understudied. Thus, the origins of the syncretism in the said languages are considered unresolved for the time being; see figures 46 and 47 for examples of the syncretism in some of the languages mentioned by Austin.

Nevertheless, note that some of the suffixes characterising causative-applicative syncretism in the said languages barely have an applicative function which may points towards a causative origin (cf. the discussion of Marathi, Japanese, Creek, Huallaga Quechua, and Kolyma Yukaghir further above). For instance, as already mentioned in §4.3.1, the applicative function of the suffix -*lhile* in Mparntwe Arrernte is only attested with two verbs; and the applicative function of the suffix -*la* in Arabana-Wangkangurru is attested with five verbs (Austin 2005: 11). In contrast, the

applicative function of the suffix *-la* in Pitta-Pitta appears to be rather productive (id.: 12ff.), and the the same is true for, e.g., the Kalkatungu suffix *-nti* (id.: 14f.).

Figure 46. Causative-applicative syncretism in Central Pama-Nyungan

	CAUS	APPL
Diyari	*tharka-ipa-* 'to stand sth. up'	*nandra-ipa-* 'to hit sb. for sb.'
Arabana-W.	*kaji-la-* 'to turn sth.'	*wiya-la-* 'to laugh at sb.'
Pitta-Pitta	*yanthi-la-* 'to burn sth.'	*wiya-la-* 'to laught at sb.'
M. Arrernte	*pwernke-lhile-* 'to split sth.'	*therre-lhile-* 'to laugh at sb.'

Figure 47. Causative-applicative syncretism in Northern Pama-Nyungan

	CAUS	APPL
Kalkatungu	*ara-nti-* 'to insert sth.'	*wani-nti-* 'to play with sb.'
Wik-Mungkan	*ika-tha-* 'to split sth.'	*kee'a-tha-* 'to play with sb.'
Margany	*dhanggi-ma-* 'to drop sth.'	*ngandhi-ma-* 'to talk to sb.'
Gunggari	*banbu-ma-* 'to fell sth.'	*ngalga-ma-* 'to talk to sb.'

Furthermore, Malchukov (2017: 12) suggests that a "reanalysis from a causative to a benefactive applicative construction is under way" facilitated by sociativity in the language isolate Seri (NA) characterised by various prefixes, e.g. *a(h)-* and *ac(o)-* (ibid.). While this development is certainly probable, it is difficult to confirm with certainty due to the little historical and comparative data available for the language. The same is true for the causative-applicative suffix *-l* in the Araucanian language Mapuche (or Mapudungun; SA) also mentioned by Malchukov (id.: 9). Additionally, Van Gysel (2018) has recently argued for causative-applicative of causative origin in the Chibchan language Pech (NA) characterised by the prefix *ũ:-*, in the Madang language Bongu (PN) characterised by the suffix *-t(e)*, and in the Edoid language Engenni (AF) characterised by the suffix *-(e)se*. Unfortunately, there is very little data available on the former two languages, and it is difficult to determine not only the extent of the said syncretism but also the chronology of the functions involved. In turn, Van Gysel tentatively speculates that the Engenni prefix may be diachronically related to the Proto-Bantu **-is* discussed further above in which case the causative-applicative syncretism in the said language would appear to be of causative origin (Hyman 2007).

As many of the languages addressed above show, there is little doubt that applicativity has a close relationship to sociative causativity, prompting Shibatani & Pardeshi (2002) to conclude that i) "the causative/applicative syncretism is seen when there is a sociative reading associated with the causative constriction" and that ii) the split occurs at an advanced stage of grammaticalization/ lexicalization" (id.: 121). The split in question represents "a strong tendency […] to avoid the morphological causativization of active verbs [e.g., 'to run,' 'to play,' 'to sit'], and to assign an applicative function to the causative morphemes found with active verbs" (id.: 118).[30] This is essentially a logical consequence of the fact that a causer can actively engage in such actions alongside the causee, and the explanation thus seems plausible, especially for the rise of comitative and instrumental applicativity as already briefly illustrated in the beginning of this section; e.g. 'to make someone walk by walking with the person' or 'to cut something by using an instrument.' With regard to benefactive applicativity, Malchukov (2017: 11f.) emphasises the assistive nature of sociative causativity; e.g. 'to help someone sew a skirt' → 'to sew a skirt for someone.'

Finally, note that the explanations above apply primarily to the rise of syncretism between causativity and comitative/instrumental/benefactive applicativity but not necessarily to other types of applicativity, e.g. locative. However, this does not pose a problem for the time being, because it currently appears that no language features causative-applicative syncretism of causative origin involving applicativity which is not comitative, instrumental, or benefactive. Indeed, it has only been possible to find two languages featuring voice marking with both a causative function and a locative applicative function, the Atlantic language Temne (AF) and the Mixe-Zoque language Ayutla Mixe (NA), but in both languages the said syncretism appears to be of applicative origin (or, perhaps, the result of coincidental phonological convergence in the latter), as further discussed in §7.6.3.

[30] Observe that it is not entirely clear what verbs qualify as "active" according to Shibatani & Pardeshi (2002) and what verbs do not. Illustratively, they treat the verb 'to stand' variously as both inactive (id.: 116) and active (id.: 119).

7.6 Applicative origin

Voice syncretism of applicative origin has received minimal attention in the literature, and in the present study it has also only been possible to find sporadic evidence for such diachrony, for instance in relation to applicative-reciprocal and applicative-antipassive syncretism discussed in the two next sections. There appears to be slightly more evidence for causative-applicative syncretism of applicative origin though, as further argued in §7.6.3.

7.6.1 From applicative to reciprocal

As discussed in §7.2.6, a diachronic development from reciprocal to applicative has been attested in a few languages. By contrast, there is little solid evidence for the opposite development, though vague hints of such development can be found among Eskimo-Aleut languages (NA). As mentioned in §7.2.4, Fortescue (2007) argues that the Proto-Eskimo suffix *-*utə* has applicative and reciprocal functions in all Eskimo languages, but cognates thereof only have the former function in the more distantly related Aleut languages (id.: 841). Furthermore, reflexes of the suffix also have a sociative function in Eskimo languages, for instance West Greenlandic; e.g. *kavvisur-* 'to drink coffee' ↔ *kavvisu-up-* 'to drink coffee together' (id.: 827). The diachrony of the sociative function is not clear, but the distribution of reciprocal and applicative functions among the Eskimo-Aleut languages suggests that the reciprocal function evolved following the applicative function. As noted in §7.2.6, comitative applicativity and sociativity are rather similar in terms of semantics while reciprocity is related to sociativity in terms of plurality of participants. Thus, it can tentatively be hypothesised that the reciprocal function of Proto-Eskimo *-*utə* evolved from the applicative function facilitated by sociativity, though more research is needed to confirm this scenario.

7.6.2 From applicative to antipassive

The applicative-reciprocal suffix *-*utə* in Proto-Eskimo mentioned in the preceding section is known to have developed an antipassive function it at least one descendant language, Central Alaskan Yupik (NA). The origin of applicative-antipassive

syncretism in this language can thus be considered applicative, at least partially; the diachronic development is described in more detail in §7.2.4. It has hitherto not been possible to find evidence for a similar development in any other language.

7.6.3 From applicative to causative

As explained in §7.5.3, causative-applicative syncretism is generally believed to evolve from (sociative) causativity, although the possibility of an opposite development is sporadically acknowledged in the literature. An early discussion of causative-applicative of applicative origin is provided by Wise (1990) who argues that the suffix *-akag* (or cognate variants thereof) found in all Pre-Andine Arawakan languages derives from the Proto-Arawakan reciprocal suffix **-k^hak^h* and that "the meaning changed from reciprocal to comitative to causative" (id.: 110). This view is adopted by Payne (2002: 501ff.) who further explains that the suffix in question seems to have replaced the causative suffix **-t^ha* among the said languages. While this suffix and its original function is retained in a large number of modern Arawakan languages (Wise 1990: 103), sporadic remnants of the suffix are "now devoid of a syntactic function" in the Pre-Andine Arawakan languages (Payne 2002: 501). The presumed development among the Pre-Andine Arawakan languages is illustrated by examples from Asheninka in figure 48 below (ibid., id.: 491f.). Note that the suffix *-aka(g)* in Asheninka has retained a reciprocal function when preceded by the suffix *-aw* which itself reflects the Proto-Arawakan reflexive suffix **-wa* (Wise 1990: 109f.), though in Ashéninka Perené the latter suffix (cf. *-av*) seems to express reciprocity by itself (Mihas 2010: 130).

Figure 48. Causative-applicative syncretism of applicative origin in Asheninka

Proto-Arawakan	**-k^hak^h*			
	↓	RECP	→	APPL
Asheninka	*-aka(g)*	*chek-aw-aka* 'to cut e.o.'		*atait-aka-* 'to climb with sb.'
				↓
				CAUS 'to make sb. climb'

Interestingly, Payne (2002) even suggests that another causative suffix in Asheninka with the variant forms *omin-/ogi-/ow-/o-* (e.g. *tyag-* 'to fall over' ↔ *o-tyag-* 'to fell sth.;' id.: 488) also has a comitative applicative origin derived from the verb *omintha* (the *-tha* element is an incorporated classifier for 'word, language') which is used for "deciding or encouraging someone to ACCOMPANY the speaker somewhere" (original small caps; id.: 504); cf. Nomatsiguenga *ominiC-* 'to take along with, cause to accompany' (ibid.). Nevertheless, it seems that this prefix does not retain a synchronic applicative function in Asheninka for which reason it is not discussed further here.

Guillaume & Rose (2010: 393) argue that the prefix *him-* in the Arawakan language Yine (SA) which may be related to the abovementioned *omin*-like prefixes in Asheninka and Nomatsiguenga (Hanson 2010: 195) also represents causative-applicative syncretism of applicative origin. In this case, however, it is not clear if the Yine prefix has yet developed a proper causative function; Hanson provides only two potential example: *him-satoka-* 'to arrive with sth.' or 'to bring something,' and *him-hapoka-* 'to arrive with sb.' or 'to make sb. arrive together with oneself' (id.: 276). These examples illustrate the occasional problem of distinguishing between causativity and applicativity discussed in §7.5.3; the comitative applicative function of the prefix seems to be very productive though (id.: passim). Similar cases can be found in other languages mentioned by Guillaume & Rose (2010), for instance in the language isolate Movima, in the Arauan languages Jarawara, and Paumarí (all three SA), as well as in Yukatek Maya (NA) also mentioned by Malchukov (2017: 12f.) and Zúñiga & Kittilä (2019: 236). In these languages there is clear applicative voice marking (i.e. *-łe*, *ka-/wa-*, *va-/vi-*, *t-*, respectively) which in some instances have an ambiguous causative reading; e.g., Yukatek Maya *áalkab-t-* 'to run behind sb.' or 'to make sb. run' (cf. *áalkab-* 'to run;' Lehmann 2015: 1457f.); cf. causative *áalkab-ans-* 'to make sb. run' (ibid.) and applicative *háakchek'-t-* 'to slip on sth.' (cf. *háakchek'-* 'to slip;' id.: 1452). Further research is needed to determine the extent and productivity of such causative functions in the said languages, but it is possible that they represent an early stage in the development of causative-applicative syncretism.

Queixalós (2002) favours an applicative origin for the causative-applicative syncretism characterised by the prefix *ka-* in the Guahiban language Sikuani (SA), as

already briefly mentioned in the §7.5.3. More specifically, Queixalós speculates that the said prefix "could be etymologically related to the word for 'hand'" and that "[o]ne of its possible senses – presumably the most basic one – is instrumental applicative" (id.: 320). As described by Guillaume & Rose (2010), synchronically the prefix *ka-* in Sikuani "can have, on the one hand, a plain applicative function, with no hint of causation, promoting for instance an instrument into O function" and "[o]n the other hand, it can convey both comitative and causative meaning" (id.: 392). If the etymology proposed by Queixalós can be confirmed, the diachronic scenario illustrated in figure 49 below seems probable.

Figure 49. Causative-applicative syncretism of applicative origin in Sikuani

'hand'

↓ APPL → CAUS

ka- *ka-nawiata* 'to go back with sb.' (or 'to make sb. go back') *ka-pitsapa* 'to make sb. go out'

Van Gysel (2018) has recently briefly argued for an applicative origin of causative-applicative syncretism in three languages spoken outside of the Americas unlike the other languages covered above: the Northern Luzon language Pangasinan (PN), the Oceanic language Trukese (PN), and the Atlantic language Temne (AF). The purported causative-applicative syncretism in Pangasinan is characterised by the prefix *pañgi-*, but unfortunately the data available for this prefix is very scant and seemingly restricted to a single example: *pañgi-tilák* '[I'll] have [Juan] leave [the rice]' (Benton 1971: 140). Benton adds that the prefix in question is "[p]robably the least frequently encountered instrumental affix" (ibid.). Consequently, it is difficult to determine the nature and productivity of its causative and applicative functions.

By contrast, in Trukese the suffix *-geni* has a clear applicative function as well as a permissive causative function with at least two verbs (Dyen 1965: 52f.). The suffix derives from the verb *(n)geni* 'to give' (ibid.; cf. Goodenough & Sugita 1980: 268) which Van Gysel (2018) considers an indicator of an applicative origin for the causative-applicative syncretism in the language. This presumed development is illustrated in figure 50 below (Dyen 1965: 53). Nevertheless, it is worth noting that the verb 'to give' also is known to grammaticalise a causative function, as noted in the

discussion of Tungusic languages in §4.3.2. Thus, the voice development proposed here for the Trukese suffix *-geni* is somewhat tentative, and more research into the chronology of its functions is needed to confirm the scenario.

Figure 50. Causative-applicative syncretism of applicative origin in Trukese

(n)geni 'to give'

↓	APPL	→	CAUS
-geni	*kupii-geni* 'to break sth. for sb.'		*kkëwyy-geni* 'to let sb. stop'
	jeniwin-geni 'to return sth. to sb.'		*jejiwen-geni* 'to let sb. lie down'

Temne is also a candidate for causative-applicative syncretism of applicative origin, although the said syncretism remains very limited in the language. As described by Kanu (2012), Temne features two productive applicative suffixes, *-(ə̀)r* and *-ʌ̀*, which predominantly have a locative and benefactive function, respectively (id.: 122ff., 167ff.). However, both suffixes can also have certain "idiosyncratic meanings" with some verbs, one of which appears to be causative (id.: 136, 184); though Kanu only provides one causative example of the suffix *-(ə̀)r* and two causative examples of the suffix *-ʌ̀*. In any case, the suffixes appear to be related to the synchronic prepositions *rò* 'to, from, in, on' and *tà* 'for,' respectively (id.: 83; cf. Hyman 2007: 156) which – together with the prominent applicative use of the suffixes – is a strong indicator of an applicative origin. These developments are illustrated in figure 51 below (Kanu 2012: 122, 135f., 176, 184). Note that the last vowel of the verb *tə́mʌ̀* 'to stand up' is replaced by *-ə̀r* in the causative; this phenomenon can also be seen among some verbs in which the suffix has an applicative function (cf. *bánsʌ̀* 'to be angry' ↔ *bans-ə̀r* 'to be angry at sb.;' id.: 132) but not all (cf. *yírʌ̀* 'to sit;' id.: 122).

Figure 51. Causative-applicative syncretism of applicative origin in Temne

rò 'to, in, on, from'

↓	APPL	→	CAUS
-(ə̀)r	*yírʌ̀-ə̀r* 'to sit on sth.'		*tə́m-ə̀r* 'to make sb. stand up'
-ʌ̀	*wáy-ʌ̀* 'to buy sth. for s.o'		*bék-ʌ̀* 'to make sb. arrive'
↑			*sə́kə̀th-ʌ̀* 'to make sth. shift to sth.'
tà 'for'			

The Mixe-Zoque language Ayutla Mixe features syncretism causative-applicative syncretism similar to that in Temne, but the diachronic development of the said syncretism in this language is more uncertain. In Ayutla Mixe the syncretism in question is characterised by the prefix *a-*, yet Romero-Méndez (2009) appears to treat the said prefix as two separate prefixes and does not address the similarity between them. On the one hand, Romero-Méndez states that one prefix *a-* is a "derivational prefix that very often has a causative meaning" which generally derives verbs from adjectives indicating change of state, but also "prefixes to verbs" (id.: 401; e.g. *tsë'ëk* 'to be scared' ↔ *a-tsë'ëk* 'to scare sb.;' id.: 97, 402). On the other hand, Romero-Méndez argues that another prefix *a-* diachronically derives from the word *ää* 'mouth' and has "a rather abstract meaning, indicating the trajectory of the action," mostly 'in,' 'into,' or 'inside' a location (id.: 381ff.; e.g. *tem-* 'to roll' ↔ *a-tem* 'to roll into sth.;' id.: 383, 602). It is unclear if the resemblance between the two prefixes *a-* is the result of coincidental phonological resemblance or if the causative function evolved from the applicative function.

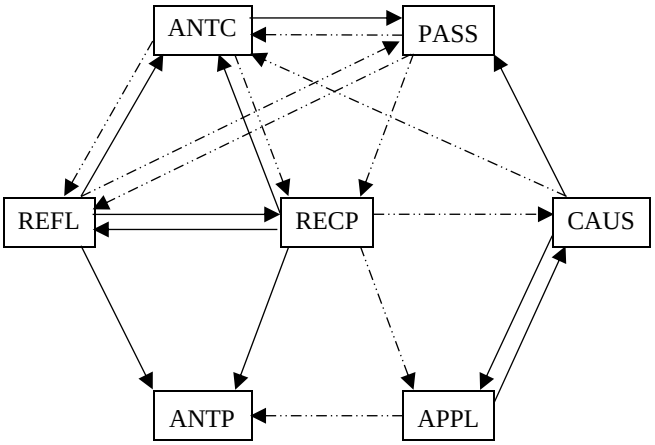
As noted in §7.5.3, the boundaries between (sociative) causativity and applicativity can be somewhat fluid in certain situations which helps to explain voice development from causative to applicative. There is no reason to assume that a voice development in the opposite direction cannot be explained in the same terms, only in a reverse manner. Indeed, the applicative voices described for most of the languages in this section are similar to those addressed in the previous section, being instrumental, comitative, and/or benefactive in nature. In fact, it seems that even the locative applicative suffix *-(ə)r* in Temne occasionally has benefactive or benefactive-like functions (e.g. *léŋ* 'to sing' ↔ *léŋ-ər* 'to sing to sb.,' *bóyà* 'to donate something' ↔ *bóyà-r* 'to donate sth. to sb.;' Kanu 2012: 131f.), not to mention a malefactive function with quite a few verbs (id.: 134). Furthermore, the same suffix often indicates that an action is performed 'in the presence' of someone which is reminiscent of a sociative function (id.: 130). Thus, it is here proposed that the evolution of causative-applicative syncretism of applicative origin essentially follows a reverse version of the developmental path from causative to applicative described in the preceding section; e.g. (instrumental) 'to chop sth. with sth.' → 'to make sth. chop sth.' → 'to make sb. chop sth.;' (comitative) 'to run with sb.' → 'to make sb. run by running with the

person' → 'to make sb. run;' (benefactive) 'to bake sth. for sb.' → 'to make sb. bake sth. by assisting the person' → 'to make sb. bake sth.'

7.7 Summary

As demonstrated in this chapter, the diachrony of voice syncretism is a complex and often unpredictable phenomenon which can seemingly follow a multitude of developmental paths. The paths and their interrelationships are summarised and visualised in figure 52 below. The dotted arrows indicate diachronic development for which evidence remains cross-linguistically scarce and/or is deemed tentative, while solid arrows indicate development for which there appears to be more evidence. Illustratively, as noted in §7.1.3, there is little evidence for development from reflexive to passive without the involvement of anticausativity. Consequently, the line from reflexive to passive is dotted although it is well known that reflexive-anticausative voice marking of an ultimately reflexive origin can evolve a passive function (cf. Indo-European).

Figure 52. Overview of the diachrony of voice syncretism



Observe that figure 52 represents a simplified diachronic overview of voice syncretism; as discussed in the individual sections of this chapter, as well as further below, the various developments are often associated with specific bridging contexts (cf. Heine & Kuteva 2007) which are not included here. Furthermore, it can be

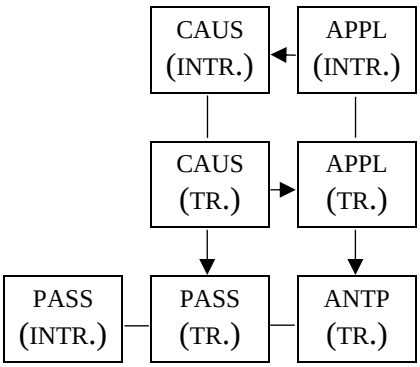
mentioned that the reciprocal voice is placed at the centre of the figure because it seems to be the only voice which can be linked to each of the six other voices diachronically in one way or another. These links are addressed in more detail at the end of this section. In contrast, the applicative and antipassive voices only appear to be linked to three other voices each.

Figure 52 paints a more complex picture of the diachronic relationships between the reflexive, anticausative, and passive voices than the model of unidirectional development from reflexive to anticausative to passive often discussed in the literature (§7.1). While the diachronic findings of the present study confirm and support a scenario from reflexive to anticausative to passive in some languages, the findings also suggest that other languages might have followed other paths of development. More specifically, developments from anticausative to reflexive in the extinct Indo-European language Hittite (EA; §7.3.1), passive to anticausative in another extinct Indo-European language Vedic Sanskrit as well as in the Tungusic language Evenki (both EA; §7.4.3), and from passive directly to reflexive in the Lowland East Cushitic language Ts'amakko (AF; §7.4.1). The evidence is admittedly limited to a few isolated languages, yet the possibility of bidirectional development in a broader cross-linguistic context is here kept open to encourage more research into the phenomenon.

Furthermore, as briefly mentioned in §3.1.2, Malchukov (2015, 2016, 2017) has designed a semantic map of "voice categories capturing selective similarities between individual categories" (id.: 24) which is presented in figure 53 on the next page. There are clear similarities between this figure and figure 52 presented on the previous page, and the diachronic findings of the present study thus supports Malchukov's observations with regard to the interrelationships between the causative, applicative, passive, and antipassive voices. More specifically, Malchukov also suggests a bidirectional relation between causatives and applicatives, though he makes a finer distinction in terms of transitivity; intransitive applicative → intransitive causative, transitive causative → transitive applicative. Moreover, he also links causatives to passives and applicatives to antipassives unidirectionally. Note that Malchukov does not propose any directionality with regard to passives and antipassives. Indeed, as discussed in §4.2.4 there is currently no good evidence for neither a development from passive to antipassive nor vice versa. Note also that evidence for voice development

from applicative to reciprocal remains very scarce (§7.6.1). Malchukov does not address reflexives, reciprocals, and anticausatives, but given the similarities between his semantic map and the findings of the present study, the map in question can be connected to the three aforementioned voices in the manner proposed in figure 52.

Figure 53. Malchukov's (2017) semantic map of voice categories



In terms of individual developmental paths, figure 52 encompasses twenty paths which can be further divided into eight unidirectional paths and six bidirectional paths, as listed in table 35 on the next page. This table also provides an overview of the various evidence for developmental paths discussed in this chapter (note that "I.-E." denotes Indo-European evidence). The language families, genera, and/or languages (henceforth collectively "languoids") listed in the table are intended to represent good candidates for the respective diachronic developments in the light of currently available data. Consequently, several other languoids addressed in the preceding sections for which evidence for a given development was deemed insufficient are not featured in the table. Nevertheless, it is hoped that future research and additional data will eventually lead to an expansion (or reduction) of languages in the list.

Table 35. Overview of evidence for the diachrony of voice syncretism

	Path			Genera
Unidirectional	REFL	→	ANTP	I.-E., Nunggubuyu, Cariban, Turkic, Iroquoian
	RECP	→	ANTP	Bantu, Oceanic, Turkic, Nunggubuyu, Central Alaskan Yupik
	RECP	→	CAUS	Yine, Khakhas
	RECP	→	APPL	Bantu, Turkic
	PASS	→	RECP	Highland East Cushitic
	CAUS	→	ANTC	Korean, Evenki
	CAUS	→	PASS	Korean, Tungusic, Mongolian, Finno-Ugric, West Greenlandic
	APPL	→	ANTP	Central Alaskan Yupik
Bidirectional	REFL	→	RECP	I.-E., Nilotic, Dogon, Hup, Jamul Tiipay, Huasteca Nahuatl, Emerillon
	RECP	→	REFL	Oceanic, Tariana, Urubú-Ka'apor, Gunwinyguan, Tuvan
	REFL	→	ANTC	I.-E., Nivkh, Nunggubuyu, Jamul Tiipay, Huasteca Nahuatl, Paresi-H.
	ANTC	→	REFL	Hittite
	REFL	→	PASS	(I.-E.)
	PASS	→	REFL	Ts'amakko
	RECP	→	ANTC	Bantu, Turkic, Ngalakan
	ANTC	→	RECP	Hittite
	ANTC	→	PASS	I.-E., Korean
	PASS	→	ANTC	Evenki, Vedic Sanskrit
	CAUS	→	APPL	Bantu, Cariban
	APPL	→	CAUS	Asheninka, Sikuani, Trukese, Temne

As seen in table 35 above, multiple diachronic developments pertaining to voice syncretism have taken place in certain languoids, notably in Indo-European, Bantu, Oceanic, Turkic (incl. Khakhas), Arawakan (i.e. Asheninka and Tariana), and Gunwinyguan (incl. Nunggubuyu and Ngalakan) languages as well as in Huasteca Nahuatl. Some of these developments are summarised on the next page in tables 36 and 37 which show various voice functions that reflexive and reciprocal affixes in the proto-languages of the aforementioned languoids have developed in descendant languages. Observe that these tables do not show the exact pathways in which the various functions have evolved, only the relation between synchronic voice marking and the earliest known function that can be reconstructed for it. Moreover, note that only one representative language is given for each function here; additional languages and examples can be found in the respective sections of this chapter.

Table 36. Overview of voice syncretism of reflexive origin

	Proto-Gunwinyguan	**Proto-Uto-Aztecan**	**Proto-Indo-European**
REFL	**-yi*	**mo-*	**s(u)e*
RECP		Huasteca Nahuatl *mo-*	Russian *-sja*
ANTC	Nunggubuyu *-i*	Huasteca Nahuatl *mo-*	Russian *-sja*
PASS		Huasteca Nahuatl *mo-*	Russian *-sja*
ANTP	Nunggubuyu *-i*		Russian *-sja*

Table 37. Overview of voice syncretism of reciprocal origin

	Proto-Oceanic	**Proto-Arawakan**	**Proto-Bantu**	**Proto-Gunwinyguan**	**Common Turkic**
RECP	**paRi-*	**-k^hak^h*	**-an*	**-nci*	**-š*
REFL	Hmwaveke *ve-*	Tariana *-kaka*		Nunggubuyu *-n^yji*	Tuvan *-š*
ANTC			Orungu *-àn*	Ngalakan *-či*	Tuvan *-š*
ANTP	To'aba'ita *kwai-*[31]		Kinyarwanda *-an*	Nunggubuyu *-n^yji*	Tatar *-š*
CAUS		Asheninka *-aka(g)*			Khakhas *-s*
APPL		Asheninka *-aka(g)*	Kinyarwanda *-an*		Tuvan *-š*

Finally, as observed and discussed in the preceding sections, the functional explanations for the various diachronic developments addressed in this chapter are diverse, and it is hardly feasible to subsume them all under one notion. However, it is worth observing that nine of the twenty developmental paths involve development to or from reciprocity in one way or another: the eight paths visible in figure 53 and table 35 in addition to the path from applicative to antipassive in the Eskimo language

[31] The peculiar form of To'aba'ita *kwai-* has been explained in footnote 27 on page 209.

Central Alaskan Yupik (NA) facilitated in part by reciprocity (§7.6.2). Thus, the reciprocal voice is involved in almost half of the diachronic developments of voice syncretism addressed in this chapter. Consequently, only the reciprocal voice seems to be linked to each of the six other voices by immediate diachrony, as mentioned in the beginning of this section. In certain cases the diachronic developments are facilitated more specifically by functions closely associated with reciprocity, most notably sociativity and/or comitativity (vid. Nedjalkov 2007 [ed.]) and/or co-participation (Creissels & Nouguier-Voisin 2008), which can be subsumed under the notion plurality of relations discussed in §7.2. This is notably the case for developments from reciprocal to antipassive, causative, or applicative (§§7.2.4–7.2.6). These facilitating factors even seem to be involved in the development from causative to applicative and vice versa (§7.5.3 and §7.6.3) as well as in the development from applicative to antipassive (§7.6.2).

In other cases, it seems that the semantics of the reciprocal voice itself are sufficiently similar to those of other voices to allow for voice syncretism to evolve; for instance in the bidirectional developments of reflexive-reciprocal and reciprocal-anticausative syncretism (§7.1.1, §§7.2.1–7.2.2, §7.3.2), and in the unidirectional development from reciprocal to passive (see §7.2.3). Likewise, the reflexive and anticausative voices are semantically similar but differ in that the latter involves a spontaneous action unlike the former; and the passive and anticausative voices are equally similar but differ in that the latter involves an agent acting upon another semantic participant (Haspelmath 1990). As demonstrated in this chapter, evidence suggests that the developments between these respective pairs are bidirectional (§7.1.2, §7.3.1, §7.3.3, §7.4.3). In turn, as discussed in §7.5.2, development from causative to passive involves an intermediary "causative-reflexive" or "reflexive permissive-causative" stage.

Finally, it was suggested that antipassive-reflexive syncretism might evolve due to the non-distinct nature of the semantic participant upon which is acted (§7.1.4), and causative-anticausative syncretism due to causer elision (§7.5.1).

8 Conclusion

As stated in the introductory chapter of this dissertation, previous studies of voice syncretism have been sporadic and often implicit in nature, and a general cross-linguistic picture of the phenomenon has hitherto been lacking (Malchukov 2017: 3f.). The main goal of this dissertation has been to fill this gap by providing the first systematic typological investigation of syncretism between passives, antipassives, reflexives, reciprocals, anticausatives, causatives, and applicatives based on a survey of 222 languages (§1.4, appendix A). This conclusion provides an overview and summary of the main findings of the preceding chapters in §8.1 below before addressing prospects for further research in §8.2.

8.1 Summary and main findings

Chapter 2 was dedicated to the definitions of the voices of focus in this dissertation: passives, antipassives, reflexives, reciprocals, causatives, anticausatives, and applicatives. As discussed in the said chapter, existing definitions of these voices in the literature commonly rely on certain notions (e.g. arguments and adjuncts, transitivity, grammatical roles, an active voice) which are intuitively clear but notoriously difficult to establish as comparative concepts. Rather than attempting to redefine the notions once again as has often been done in the past, the notions have been avoided entirely in the dissertation. Instead, a new approach to the definitions of voices was proposed based on a comparison between two clausal constructions (i.e. diatheses) and formal verbal marking in addition to their numbers of semantic participants and the semantic roles of these. It was demonstrated that these criteria alone suffice to define the seven abovementioned voices as broad comparative concepts useful for the investigation of cross-linguistic diversity in voice syncretism. Given their minimal definitions and wide scopes, these definitions can potentially be employed in future cross-linguistic research pertaining not only to voice syncretism but also to other typological aspects of the various voices.

Chapter 3 established both various types of voice syncretism and the approach in which voice syncretism has been investigated in subsequent chapters. It was argued

that 120 patterns of syncretism can logically be posited for the seven voices of interest in this dissertation and these patterns can be either simplex or complex. A simplex pattern was defined as voice marking shared by two voices (e.g. reflexive-reciprocal syncretism), while a complex pattern was defined as voice marking shared by more than two voices (e.g. reflexive-reciprocal-anticausative syncretism). This distinction is particularly useful when handling languages with intricate voice syncretism as the syncretism in question can conveniently be broken down into individual simplex patterns if needed; and simplex patterns can likewise efficiently be grouped to form complex patterns.

The division of voice syncretism according to pattern was supplemented by a classification based on the resemblance in formal verbal marking between voices. More specifically, it was shown that three overarching types of voice syncretism can be distinguished cross-linguistically based on the said resemblance alone. Type 1 syncretism was defined as full resemblance in voice marking (cf. Gurr-Goni reflexive-reciprocal *-yi*; e.g. *bu-yi-* 'to hit self' or 'to hit e.o.;' Green 1995: 214), type 2 syncretism as partial resemblance in voice marking (cf. Assiniboine applicative *ki-* and reciprocal *kic^{h}í-*; e.g. *ki-yúk^{h}ą́* 'to make room for sb.,' *kic^{h}í-pažipa* 'to poke e.o.;' Cumberland 2005: 263, 271), and type 3 syncretism as reverse resemblance in voice marking (cf. Alamblak causative *hay-* and applicative *-hay*; e.g. *hay-ni* 'to make sb. go,' *suh-hay* 'to fall for the benefit of sb.;' Bruce 1979: 209, 250, 255). Type 1 syncretism can in turn be divided into two sub-types based on whether the full resemblance in question is unconditioned (like in Gurr-Goni above) or conditioned (in Sandawe, for instance, causative and applicative voice marking is only identical before a vowel, i.e. *-kw*; e.g. *mântshà-kw-ˈé* 'to make him eat sth.' or 'to eat sth. for his benefit;' Steeman 2012: 189). These types are not restricted to syncretism involving the seven voices of focus in this dissertation, but can be applied to the investigation of other phenomena pertaining to syncretism as well.

Chapter 4 provided a systematic cross-linguistic synchronic investigation of each of the 21 logically possible patterns of simplex voice syncretism. Prior discussions of simplex voice syncretism have tended to focus only on certain patterns (notably patterns of middle syncretism) giving the impression that the syncretism in question is a uniform and well delineated phenomenon. However, the said chapter showed that

19 of the abovementioned 21 simplex patterns are attested as type 1 syncretism in the language sample of this dissertation illustrating the diverse nature of voice syncretism. Only one pattern remains unattested altogether, applicative-anticausative syncretism, which is not particularly surprising considering the seemingly disparate functions of the applicative and anticausative voices; the former voice is generally associated with a reduction in semantic participants, while the latter voice is associated with an increase.

Nevertheless, other seemingly incongruous patterns are attested in the sample as well, for example causative-anticausative syncretism and passive-antipassive syncretism in four languages each. Attestations of such unexpected patterns suggest that disparity and incongruity defined by theory does not necessarily apply in practice. Certain patterns of voice syncretism are undoubtedly more common than others though which shows that the functions of some voices are more likely than others to be perceived by speakers of different languages as being sufficiently alike to develop similar marking. This is particularly true for patterns of middle syncretism involving the passive, reflexive, reciprocal, and anticausative voices. The high prevalence of such patterns attested in the sample of this dissertation thus confirms the close relationship between the aforementioned voices oftentimes observed in the literature. The relation between the antipassive voice and other voices has received less attention in the literature (with a few exceptions, e.g. Janic 2010, 2016; Sansò 2017, 2018) but several patterns of such syncretism were attested in ten or more genera in the sample of this dissertation and it is not unlikely that the phenomenon has hitherto been overlooked in languages and genera outside the sample.

Chapter 5 provided a cross-linguistic synchronic investigation similar to that in chapter 4 but focused on complex voice syncretism. Such syncretism has been the topic of little explicit research, though some systematic data on the phenomenon can notably be extracted from Geniušienė's (1987) study of reflexives and Haspelmath's (1990) study of passives. Of the 99 logically possible patterns of complex voice syncretism only 24 patterns are attested in the language sample of this dissertation, most of which involve three voices. Complex syncretism involving four voices is found in nine languages of the sample, while complex syncretism involving five voices is attested solely in the Permic language Udmurt (NA). The only other languages

outside the sample for which the latter multiplex syncretism has hitherto been attested are the related language Komi and the Slavic language Russian.

It is hardly surprising that no complex patterns involving six or seven voices have been attested in this dissertation, as such patterns would entail a high degree of functional ambiguity. This is also true for the multiplex syncretism mentioned above, yet in this unique case of voice syncretism, the context and the semantics of verbs apparently suffice to tell the meanings apart. Thus, it seems that passive-antipassive-reflexive-reciprocal-anticausative syncretism represents the upper limit of complexity regarding voice syncretism. Moreover, it might be worth noting that the most common pattern of complex voice syncretism involving four voices was found to be antipassive-reflexive-reciprocal-anticausative syncretism which has received minimal attention in the literature unlike the less common pattern of passive-reflexive-reciprocal-anticausative syncretism which has been the topic of much discussion in relation to Indo-European languages, albeit often implicitly.

Chapter 6 presented a statistical distributional overview of the simplex and complex syncretism discussed above according to syncretism type, macroarea, frequency, and probability. It was shown that 46.8 percent or roughly half of the languages in the sample feature voice syncretism, in other words 104 languages and thereby 104 genera. In terms of syncretism type, the voice syncretism in most of the aforementioned languages qualifies as type 1 syncretism, though it is worth noting that type 2 syncretism is attested in a decent portion of the languages as well, roughly one fourth. Considering the little attention the latter type of syncretism has gotten in the literature, it would seem that type 2 voice syncretism is more prevalent cross-linguistically than hitherto acknowledged.

By contrast, type 1b and type 3 syncretism remains rare cross-linguistically, but the attestations of these types of syncretism in six languages each show that resemblance in voice marking can be intricate in its own right. The low frequencies of these types are probably linked to the fact that most of their attestations are the result of coincidental phonological convergence. However, it was demonstrated that in a few cases the syncretism can be explained by a shared diachronic origin (including the case of Alamblak illustrated further above in relation to chapter 3; cf. *hay* ‘to give’), and the phenomena might be worthy of more research.

As already noted further above, data from the language sample clearly show that patterns of middle syncretism are generally more prevalent than others cross-linguistically. In a similar vein, it was demonstrated that reflexive voice marking tends to be more syncretic than voice marking in other voices which shows that the traditional attention on the reflexive voice in discussions of syncretism is not unfounded (e.g. Geniušienė 1987, Kemmer 1993). More interestingly, causative-applicative syncretism was found to be the fourth most common pattern of voice syncretism among the languages in the sample and thus surpasses all patterns involving the passive voice which are otherwise better known in the literature. This finding substantiates Malchukov's (2017) suspicion that the said pattern appears to have been underreported in the past. As mentioned further above, the same can be said about antipassive syncretism (cf. Janic 2010).

Finally, chapter 7 provided a diachronic investigation of voice syncretism, or more specifically an investigation of cases of syncretic voice marking for which it can be plausibly demonstrated that one voice function evolved prior to other voice functions. The diachrony of the said syncretism was approached in much the same way as its synchrony (see the discussions above) by first establishing the number of diachronic paths of development that can logically be posited between the seven voices of interest to this dissertation; that is 42. Evidence was found and discussed for twenty of these paths, several of which have received little or no prior treatment in the past. It was further demonstrated that twelve of the twenty aforementioned developmental paths represent six bidirectional diachronic scenarios, some of which have traditionally been considered unidirectional in the literature. Thus, the findings of the dissertation indicate that the diachrony of many patterns of voice syncretism may be more intricate than hitherto believed. Moreover, the chapter showed that functional explanations differ considerably for the various developmental paths, and no attempt has been made to unify them under any single notion. However, it was noted that half of the twenty aforementioned paths involve reciprocity in one way or another, and the reciprocal voice is accordingly the only voice of the seven investigated in this dissertation that is linked to each of the other six voices by immediate diachrony.

8.2 Prospects for further research

Having mapped the cross-linguistic and typological variation in the syncretism between passives, antipassives, reflexives, reciprocals, anticausatives, causatives, and applicatives, this dissertation naturally invites for further research. As already noted in chapter 1, voice syncretism is a broad phenomenon, wherefore it has been necessary to restrict the scope of this dissertation in various ways. Consequently, certain aspects of voice syncretism have not been covered in detail in the dissertation. Most notably, syntactic aspects have only been discussed sporadically, and potential correlations between voice syncretism and syntactic language-internal characteristics (e.g. morphosyntactic alignment, head- and dependent marking, etc.) have not been addressed at all. Neither have relationships between voice syncretism and semantic verb classes (see, e.g., Malchukov 2015 and Wichmann 2015). Furthermore, as mentioned repeatedly in the preceding chapters, individual voices are commonly associated with various additional semantic functions (e.g. reciprocals and sociativity, antipassives and aspect) which it has not been possible to cover systematically in the survey of this dissertation for practical reasons due to their sheer numbers. As demonstrated in the chapter on diachrony, some of these functions are clearly relevant to the evolution of voice syncretism in some languages, but the extent of their cross-linguistic relevance is yet to be determined more exactly. In other words, it remains unclear how widely applicable many of the proposed diachronic explanations are cross-linguistically due to the limited evidence available for many of the developmental paths presented in the abovementioned chapter.

Thus, as mentioned in the preceding section, the diachrony of voice syncretism is seemingly more diverse than hitherto acknowledged, and this dissertation calls for further exploration of the matter. As hinted throughout the preceding chapters, there are indications of certain diachronic developments in some languages (for instance in the form of synchronic distribution of functions), but without additional comparative and/or historical data it is difficult to confirm that such indications are right. Moreover, as proposed in the chapter on diachrony, some diachronic developments pertaining to voice syncretism appear to be bidirectional, but it remains unclear what conditions the directionality of development, and any development in general. Say, why does reflexive voice marking develop a reciprocal function in some languages but

reciprocal voice marking develop a reflexive function in others. Illustratively, consider the reflexive-reciprocal prefix *ze-* in the Tupi-Guaraní language Emerillon (SA) and the reflexive-reciprocal suffix *-n^{y}ji* in the Gunwinyguan language Nunggubuyu (AU). The former affix reflects Proto-Tupi-Guaraní reflexive **je-* and has entirely replaced reciprocal **jo-* (Jensen 1998); while the latter affix reflects Proto-Gunwinyguan reciprocal **-nci* and has almost entirely replaced reflexive **-yi* (Alpher et al. 2003).

Furthermore, it remains unknown to what extent the rare patterns of voice syncretism attested in this dissertation are the result of coincidental convergence or represent the results of more systematic (albeit infrequent) processes of grammaticalisation. As noted in §4.5 and shown in the preceding chapter, many of the patterns can seemingly be explained diachronically in functional terms, but attestations and evidence remain scarce. One obvious place to look for similar diachronic processes and more evidence would be among related languages, in other words through genus- or family-specific case studies. Such case studies would also be interesting in relation to complex voice syncretism to see if the said syncretism is language-particular or represents genus- or family-wide tendencies. Many of the languages with the most complex voice syncretism attested in this dissertation come from rather well-documented language families covering multiple languages and such studies should therefore be feasible; e.g. Uto-Aztecan (cf. Huasteca Nahuatl), Oto-Manguean (cf. Acazulco Otomí), Iroquoian (cf. Cherokee). Macroareal tendencies also remain understudied; as mention in §6.3.4, it has been difficult to draw any broad generalisations about the geographical distribution of voice syncretism due to the sporadic and irregular attestations of many patterns of syncretism, but macroarea-specific studies might turn up more evidence.

Finally, it is hoped that the findings and approach of this dissertation might serve as inspiration and a starting point for future typological investigation and exploration of voice syncretism and other related phenomena.

9 Appendices

Appendix A: Language sample

This appendix lists the languages included in the language sample of this dissertation alphabetically according to genus alongside macroarea and primary sources of data. The manner in which the language sample has been composed is discussed in §1.4 in which the sources also briefly have been described on a more general level.

(1/7)	**Genus**	**Language**	**Primary source(s)**
AF	Afro-Asiatic – Berber	Ghomara	Mourigh 2015
AF	Afro-Asiatic – Chadic – Biu-Mandara	Sakun	Thomas 2014
AF	Afro-Asiatic – Chadic – East Chadic	Baraïn	Lovestrand 2012
AF	Afro-Asiatic – Chadic – West Chadic	Goemai	Hellwig 2011
AF	Afro-Asiatic – Cushitic – Central Cushitic	Khimt'anga	Belay 2015
AF	Afro-Asiatic – Cushitic – H. East Cushitic[32]	Sidaama	Kawachi 2007
AF	Afro-Asiatic – Cushitic – L. East Cushitic[33]	Konso	Orkaydo 2013
AF	Afro-Asiatic – Omotic – Dizoid	Sheko	Hellenthal 2010
AF	Afro-Asiatic – Omotic – North Omotic	Wolaytta	Wakasa 2008
AF	Afro-Asiatic – Omotic – South Omotic	Hamar	Petrollino 2016
AF	Afro-Asiatic – Semitic	Arabic (Darfur)	Roset 2018
NA	Algic – Algonquian	Arapaho	Cowell & Moss Sr. 2008
EA	Altaic – Mongolic	Mongolian	Tserenpil & Kullmann 2008; Janhunen 2010
EA	Altaic – Tungusic	Kilen	Paiyu 2013
EA	Altaic – Turkic	Tatar	Zinnatullina 1969, 1993; Burbiel 2018
SA	Arauan	Kulina	Dienst 2014
SA	Araucanian	Mapuche	Smeets 2008
NA	Arawakan – Caribbean Arawakan	Garifuna	Haurholm-Larsen 2016
SA	Arawakan – Central Arawakan	Paresi-Haliti	Brandão 2014
SA	Arawakan – Inland Northern Arawakan	Tariana	Aikhenvald 2003
SA	Arawakan – Purus	Yine	Hanson 2010
SA	Arawakan – Wapishanan	Wapishana	dos Sanots 2006
EA	Austro-Asiatic – Mon-Khmer – Aslian	Semelai	Kruspe 2004
EA	Austro-Asiatic – Mon-Khmer – Bahnaric	Stieng (Bulo)	Bon 2014

[32] Highland East Cushitic.

[33] Lowland East Cushitic.

(2/7)	**Genus**	**Language**	**Primary source(s)**
EA	Austro-Asiatic – Mon-Khmer – Khmer	Khmer (Central)	Haiman 2011
EA	Austro-Asiatic – Mon-Khmer – P.-K.[34]	Lawa (Eastern)	Blok 2013
PN	Austronesian – Central Malayo-Polynesian	Lamaholot	Kroon 2016
PN	Austronesian – East Formosan	Amis	Sung 2006; Wu 2006
PN	Austronesian – Eastern M.-P. – Oceanic	Cheke Holo	Boswell 2018
PN	Austronesian – Eastern M.-P. – H.-N. G.[35]	Wooi	Sawaki 2017
PN	Austronesian – Greater Central Philippine	Cebuano	Tanangkingsing 2009
PN	Austronesian – Malayo-Sumbawan	Madurese	Davies 2010
PN	Austronesian – Northern Luzon	Dupaningan Agta	L. Robinson 2011
PN	Austronesian – N. S.-B. I.[36]	Gayo	Eades 2005
PN	Austronesian – South Sulawesi	Makassarese	Jukes 2006, 2013
PN	Baining-Taulil – Taulil	Tulil	Meng 2018
SA	Barbacoan	Awa Pit	Curnow 1997
EA	Basque	Basque	Hualde & de Urbina (eds.) 2006; De Rijk 2007
SA	Cacua-Nukak	Kakua	Bolaños 2016
SA	Camsá	Kamsá	O'Brien 2018
SA	Cariban	Panare	Payne & Payne 2012
AF	Central Sudanic – Bongo-Bagirmi	Kabba	Moser 2004
AF	Central Sudanic – Lendu	Ngiti	Lojenga 1994
AF	Central Sudanic – Moru-Ma'di	Ma'di	Blackings & Fabb 2003
SA	Chapacura-Wanham	Oro Waram	Apontes 2015
SA	Chibchan – Arhuacic	Ika	Frank 1985
NA	Chibchan – Rama	Rama	Grinevald 1990
NA	Chibchan – Talamanca	Teribe	Quesada 2000
EA	Chukotko-Kamchatkan – Northern	Chukchi	Dunn 1999; Nedjalkov 2006; Kurebito 2012; Stenin 2017
NA	Chumash	Ineseño	Applegate 1972
AU	Darwin Region – Limilngan	Limilngan	Harvey 2001
AF	Dogon	Yanda Dom	Heath 2017
EA	Dravidian – South-Central Dravidian	Telugu	Krishnamurti & Gwynn 1985; Subbarao & Murthy 1999
EA	Dravidian – Southern Dravidian	Malayalam	Asher & Kumari 2003
PN	East Bird's Head	Moskona	Gravelle 2010

[34] Palaung-Khmuic.

[35] Eastern Malayo-Polynesian – South Halmahera-West New Guinea.

[36] Northwest Sumatra-Barrier Islands.

(3/7)	**Genus**	**Language**	**Primary source(s)**
PN	East Bougainville	Motuna	Onishi 1994[37]
PN	East Strickland	Konai	Årsjö 2016
AU	Eastern Daly	Matngele	Zandvoort 1999
AF	Eastern Sudanic – Eastern Jebel	Gaahmg	Stirtz 2012
AF	Eastern Sudanic – Kuliak	Ik	Schrock 2014
AF	Eastern Sudanic – Nilotic	Luwo	Storch 2014
AF	Eastern Sudanic – Nubian	Kunuz Nubian	Abdel-Hafiz 1988[38]
AF	Eastern Sudanic – Surmic	Majang	Joswig 2019
NA	Eskimo-Aleut – Eskimo	Yupik (Central Alaskan)	Miyaoka 2012
AU	Garrwan	Garrwa	Mushin 2012
EA	Great Andamanese	Great Andamanese	Abbi 2013
SA	Guaicuruan – South Guaicuruan	Pilagá	Vidal 2001
AF	Gumuz	Gumuz (Northern)	Ahland 2012
AU	Gunwinyguan – Anindilyakwa	Enindhilyakwa	Van Egmond 2012
AU	Gunwinyguan – Gunwinygic	Bininj Gun-Wok	Evans 2003
AU	Gunwinyguan – Ngandi	Ngandi	Heath 1978
AU	Gunwinyguan – Nunggubuyu	Nunggubuyu	Heath 1984
AU	Gunwinyguan – Warayic	Waray	Harvey 1986[39]
EA	Hmong-Mien	Xong (Western)	Sposato 2015
NA	Hokan – Chimariko	Chimariko	Jany 2009
NA	Hokan – Pomoan	Southern Pomo	Walker 2013[40]
NA	Hokan – Yuman	Jamul Tiipay	A. Miller 2001
NA	Huavean	Huave (San F. del Mar)	Kim 2008
SA	Huitotoan – Boran	Bora	Thiesen & Weber 2012
SA	Huitotoan – Huitoto	Murui	Wojtylak 2017
EA	Indo-European – Armenian	Armenian (Eastern)	Dum-Tragut 2009
EA	Indo-European – Celtic	Welsh	G. King 2003; Borsley et al. 2007
EA	Indo-European – Germanic	Danish	Own knowledge
EA	Indo-European – Iranian	Balochi	Axenov 2006
NA	Iroquoian – Southern Iroquoian	Cherokee	Montgomery-Anderson 2008
EA	Isolate	Ainu	Bugaeva 2004; Alpatov et al. 2007
AF	Isolate	Chabu	Kibebe 2015
AU	Isolate	Gaagudju	Harvey 2011
NA	Isolate	Haida (Masset)	Enrico 2003
NA	Isolate	Kutenai	Morgan 1991

[37] The 2011 version of Onishi's grammar could not be obtained.

[38] The 2017 version of Abdel-Hafiz' grammar could not be obtained.

[39] The 1999 version of Harvey's grammar could not be obtained.

[40] The 2020 version of Walker's grammar could not be obtained.

(4/7)	**Genus**	**Language**	**Primary source(s)**
SA	Isolate	Kwaza	van der Voort 2004
SA	Isolate	Mosetén	Sakel 2004
SA	Isolate	Movima	Haude 2006, 2019
EA	Isolate	Nihali	Nagaraja 2014
EA	Isolate	Nivkh	Nedjalkov & Otaina 2013
PN	Isolate	Oksapmin	Loughnane 2009
SA	Isolate	Puinave	Higuita 2008
AF	Isolate	Sandawe	Eaton 2010; Steeman 2010
SA	Isolate	Trumai	Guirardello 1999
SA	Isolate	Urarina	Olawsky 2006
AU	Isolate	Wagiman	Cook 1987
NA	Isolate	Yuchi	Linn 2000
EA	Japanese	Irabu	Shimoji 2008
SA	Jivaroan	Wampis	Peña 2015
SA	Kapixana	Kanoê	Bacelar 2004
SA	Katukinan	Katukina-Kanamari	dos Anjos 2011
NA	Keresan	Keresan (Western)	Lachler 2006
AF	Khoe-Kwadi	Ts'ixa	Fehn 2014
AF	Koman	Uduk	Killian 2015
AF	Kordofanian – Talodi	Lumun	Smits 2017
EA	Korean	Korean	Chang 1996; H.-M. Sohn 1999; Yeon & Brown 2011
PN	Kwomtari-Baibai – Fas	Momu	Honeyman 2017
AF	Kxa – ǂHoan	ǂHõã	Collins & Gruber 2014
AF	Kxa – Ju-Kung	!Xun (Western)	Heine & König 2015
PN	Lower Sepik-Ramu – Botin	Ulwa	Barlow 2018
PN	Lower Sepik-Ramu – Lower Ramu	Awar	Levy 2002
PN	Lower Sepik-Ramu – Lower Sepik	Yimas	Foley 1991
SA	Macro-Ge – Ge-Kaingang	Apinajé	de Oliveria 2005
AF	Mande – Eastern Mande	Mano	Khachaturyan 2014
AF	Mande – Western Mande	Jalkunan	Heath 2017
AU	Mangarrayi-Maran – Mangarrayi	Mangarrayi	Merlan 1989
AU	Mangrida – Burraran	Gurr-Goni	Green 1995
AU	Mangrida – Nakkara	Nakkara	Eather 2011
PN	Marind – Marind Proper	Marind	Olsson 2017
SA	Mascoian	Sanapaná	Gomes 2013
NA	Mayan	Chol	Álvarez 2011
AU	Mirndi – Djingili	Jingulu	Pensalfini 2003
NA	Mixe-Zoque	Mixe (Ayutla)	Romero-Méndez 2009
NA	Muskogean	Creek	Martin 2011
SA	Nadahup	Hup	Epps 2008

(5/7)	**Genus**	**Language**	**Primary source(s)**
NA	Na-Dene – Athapaskan	Tanacross	Holton 2000
EA	Nakh-Daghestanian – D. – A.-A.-T.[41]	Hinuq	Forker 2013
EA	Nakh-Daghestanian – Nakh	Ingush	Nichols 2011
SA	Nambikuaran	Mamaindê	Eberhard 2009
AF	Niger-Congo – Adamawa-Ubangi – A.[42]	Mambay	Anonby 2008
AF	Niger-Congo – Atlantic – Mel	Mani	Childs 2011
AF	Niger-Congo – Atlantic – Northern Atlantic	Balanta (Ganja)	Creissels & Biaye 2016
AF	Niger-Congo – Benue-Congo – Bantoid	Fwe (Namibian)	Gunnink 2018
AF	Niger-Congo – Gbaya-Manza-Ngbaka	Ngbaka (Manza)	Selezilo 2008
AF	Niger-Congo – Gur	Moba	Kanchoua 2006
AF	Niger-Congo – Kwa	Tafi	Bobuafor 2013
EA	Northwest Caucasian	Ubykh	Fenwick 2011; Fell 2012; Arkadiev & Lander 2018
AU	Nyulnyulan	Bardi	Bowern 2012
NA	Oto-Manguean – Mixtecan	Mixtec (Chalcatongo)	Macaulay 1996
NA	Oto-Manguean – Otomian	Otomí (Acazulco)	Hernández-Green 2015
NA	Oto-Manguean – Zapotecan	Zapotec (Zoochina)	Nicolás 2016
SA	Páezan	Páez	Jung 2008
AU	Pama-Nyungan – Central Pama-Nyungan	Arrernte (Mparntwe)	Wilkins 1989
AU	Pama-Nyungan – Western Pama-Nyungan	Bilinarra	Meakins & Nordlinger 2014
SA	Panoan	Chácobo	Tallman 2018
SA	Peba-Yaguan	Yagua	Payne 1985a-b
NA	Penutian – Molala	Molalla	Pharris 2006
NA	Penutian – Sahaptian	Sahaptin (Northern)	Jansen 2010
NA	Penutian – Utian – Costanoan	Mutsun	Okrand 1977
SA	Quechuan	Quechua (Yauyos)	Shimelman 2017
AF	Saharan – Western Saharan	Dazaga	Walters 2015[43]
NA	Salishan – Central Salish	Musqueam	Suttles 2004
NA	Salishan – Interior Salish	Nxa'amxcin	Willett 2003
PN	Senagi	Menggwa Dla	de Sousa 2006
PN	Sepik – Middle Sepik	Iatmul	Jendrascheck 2012
PN	Sepik – Ram	Awtuw	Feldman 1988
PN	Sepik – Sepik Hill	Alamblak	Bruce 1979
PN	Sepik – Tama Sepik	Mehek	Hatfield 2016
PN	Sepik – Upper Sepik	Abau	Lock 2011
EA	Sino-Tibetan – Chinese	Chinese (Gan)	Li 2018

[41] Daghestanian – Avar-Andic-Tsezic.

[42] Adamawa.

[43] The 2016 version of Walters' grammar could not be obtained.

(6/7)	**Genus**	**Language**	**Primary source(s)**
EA	Sino-Tibetan – Tibeto-Burman – Dhimalic	Dhimal	J. King 2009; Khatiwada 2016
EA	Sino-Tibetan – Tibeto-Burman – Lepcha	Lepcha	Plaisier 2007
EA	Sino-Tibetan – Tibeto-Burman – Naxi	Yongning Na	Lidz 2010
EA	Sino-Tibetan – Tibeto-Burman – Nungish	Anong	Sun & Liu 2009
EA	Sino-Tibetan – Tibeto-Burman – Qiangic	Pumi (Northern)	Daudey 2014
EA	Sino-Tibetan – Tibeto-Burman – Tani	Galo	Post 2007
NA	Siouan – Core Siouan	Assiniboine	Cumberland 2005
PN	Skou – Warapu	Barupu	Corris 2005
PN	Skou – Western Skou	Skou	Donohue 2004
PN	Solomons East Papuan – Lavukaleve	Lavukaleve	Terrill 2003
PN	Solomons East Papuan – Savosavo	Savosavo	Wegener 2012
AF	Songhay	Humburi Senni	Heath 2014
EA	South Andamanese	Jarawa	Kumar 2012
AU	Southern Daly – Ngankikurungkurr	Ngan'gityemerri	Reid 1990
SA	Tacanan	Ese Ejja	Vuillermet 2012
EA	Tai-Kadai – Kam-Tai	Lao	Enfield 2007
AU	Tangkic	Kayardild	Evans 1995; Round 2013
PN	Timor-Alor-Pantar – Greater Alor	Teiwa	Klamer 2010
PN	Timor-Alor-Pantar – M.-F.-O.[44]	Makalero	Huber 2011
AU	Tiwian	Tiwi (Traditional)	Lee 1987[45]
PN	Torricelli – Urim	Urim	Hemmilä & Luoma 1987; Wood 2012
PN	Torricelli – Wapei-Palei	Yeri	Wilson 2017
NA	Totonacan	Totonac (Filomeno M.)	McFarland 2009
PN	Trans-New Guinea – Angan	Menya	Whitehead 2004/2006
PN	Trans-New Guinea – Binanderean	Korafe	Farr 1999
PN	Trans-New Guinea – Chimbu	Dom	Tida 2006
PN	Trans-New Guinea – Dani	Wano	Burung 2017
PN	Trans-New Guinea – Duna	Duna	San Roque 2008
PN	Trans-New Guinea – Engan	Kewapi	Yarapea 2006
PN	Trans-New Guinea – Finisterre-Huon	Nungon	Sarvasy 2014
PN	Trans-New Guinea – Goilalan	Fuyug	Bradshaw 2007
PN	Trans-New Guinea – Madang	Mauwake	Berghäll 2015
PN	Trans-New Guinea – Mek	Una	Louwerse 1988
PN	Trans-New Guinea – Ok	Mian	Fedden 2011
SA	Tucanoan	Tanimuka	Eraso 2015
SA	Tupian – Ramarama	Karo	Gabas 1999

[44] Makasea-Fataluku-Oirata.

[45] The 1999 version of Lee's grammar could not be obtained.

(7/7)	**Genus**	**Language**	**Primary source(s)**
SA	Tupian – Tupi-Guarani	Emerillon	Rose 2003[46]
EA	Uralic – Finno-Ugric – Finnic	Finnish	Own knowledge
EA	Uralic – Finno-Ugric – Permic	Udmurt	Perevoščikov 1962; Winkler 2011
EA	Uralic – Finno-Ugric – Ugric	Mansi (Northern)	Rombandeeva 1973; Riese 2001
EA	Uralic – Samoyedic	Enets (Forest)	Siegl 2013
NA	Uto-Aztecan – Aztecan	Nahuatl (Huasteca)	Llanes et al. 2017; Navarro 2017
NA	Uto-Aztecan – California Uto-Aztecan	Cupeño	Hill 2005
NA	Uto-Aztecan – Numic	Ute	Givón 2011
NA	Uto-Aztecan – Tarahumaran	Warihio	Armendáriz 2006
NA	Uto-Aztecan – Tepiman	Pima Bajo	Fernández 2014
NA	Wakashan – Southern	Makah	Davidson 2002
NA	Wappo-Yukian – Wappo	Wappo	Thompson et al. 2006
PN	West Bougainville	Rotokas	S. Robinson 2011
PN	West Papuan – Hatam	Hatam	Reesink 1999
PN	West Papuan – North Halmaheran	Ternate	Hayami-Allen 2001
PN	West Papuan – North-Central Bird's Head	Maybrat	Dol 2007
AU	Yangmanic	Wardaman	Merlan 1994
SA	Yatê	Yaathê	da Costa 1999
EA	Yeniseian	Ket	Werner 1997; Georg 2007; Vajda 2015
EA	Yukaghir	Yukaghir (Tundra)	Schmalz 2013

[46] The 2011 version of Rose's grammar could not be obtained.

Appendix B: Attestations of individual voices

This appendix lists the attestations of individual voices in the language sample of this dissertation alphabetically according to language. More information about the individual languages can be found in appendix A, while the definitions according to which the voices have been identified are discussed in §2.2. Observe that the data in this appendix only has been employed in some of the statistical tables pertaining to the distribution of voices presented in chapter 6 for which reason no additional information on voice marking is provided here. Also observe that the data in this appendix does *not* provide any information about syncretism. More details on syncretic voice marking is provided in appendix C.

(1/7)	REFL	RECP	ANTC	PASS		ANTP		CAUS	APPL
				(+Abs)	(-Abs)	(+Abs)	(-Abs)		
Abau								✓	
Ainu	✓	✓	✓		✓	✓		✓	✓
Alamblak		✓						✓	✓
Amis		✓						✓	✓
Anong	✓	✓	✓					✓	
Apinajé			✓			✓		✓	
Arabic (Darfur)	✓	✓	✓		✓			✓	
Arapaho	✓	✓		✓	✓	✓		✓	✓
Armenian (Eastern)	✓	✓	✓		✓			✓	
Arrernte (Mparntwe)	✓	✓	✓					✓	✓
Assiniboine	✓	✓				✓		✓	✓
Awa Pit								✓	✓
Awar									
Awtuw		✓							✓
Balanta (Ganja)		✓	✓	✓		✓		✓	✓
Balochi								✓	
Baraïn		✓	✓	✓				✓	✓
Bardi	✓	✓							✓
Barupu									✓
Basque								✓	
Bilinarra									
Bininj Gun-Wok	✓	✓	✓					✓	✓
Bora	✓	✓		✓				✓	
Cebuano		✓						✓	

(2/7)	REFL	RECP	ANTC	PASS		ANTP		CAUS	APPL
				(+Abs)	(-Abs)	(+Abs)	(-Abs)		
Chabu	✓	✓			✓			✓	✓
Chácobo	✓	✓	✓	✓		✓		✓	✓
Cheke Holo		✓						✓	
Cherokee	✓	✓	✓			✓		✓	✓
Chimariko	✓	✓						✓	✓
Chinese (Gan)									
Chol					✓	✓		✓	✓
Chukchi	✓	✓	✓				✓	✓	✓
Creek	✓	✓	✓	✓				✓	✓
Cupeño			✓	✓				✓	✓
Danish		✓	✓		✓				
Dazaga	✓		✓						
Dhimal	✓	✓	✓	✓				✓	✓
Dom									
Duna								✓	✓
Dupaningan Agta		✓						✓	✓
Emerillon	✓	✓						✓	✓
Enets (Forest)					✓	✓		✓	
Enindhilyakwa	✓	✓	✓					✓	✓
Ese Ejja	✓	✓	✓				✓	✓	✓
Finnish	✓		✓	✓				✓	
Fuyug									
Fwe (Namibian)	✓	✓	✓		✓			✓	✓
Galo	✓	✓	✓					✓	✓
Garifuna	✓	✓	✓	✓				✓	
Garrwa			✓					✓	
Gayo		✓						✓	✓
Ghomara		✓		✓				✓	
Goemai									
Great Andamanese	✓	✓						✓	✓
Gumuz (Northern)		✓							✓
Gurr-Goni	✓	✓	✓					✓	
Gaagudju	✓	✓	✓						
Gaahmg				✓	✓	✓		✓	
Haida (Masset)						✓		✓	
Hamar		✓	✓	✓				✓	
Hatam									✓
Hinuq			✓				✓	✓	
ǂHõã				✓				✓	

(3/7)	REFL	RECP	ANTC	PASS		ANTP		CAUS	APPL
				(+Abs)	(-Abs)	(+Abs)	(-Abs)		
Huave (San F. del Mar)	✓	✓	✓	✓				✓	
Humburi Senni			✓	✓		✓		✓	✓
Hup	✓	✓	✓		✓			✓	✓
Iatmul									
Ik		✓	✓	✓				✓	
Ika	✓	✓						✓	✓
Ineseño	✓	✓						✓	✓
Ingush								✓	
Irabu			✓		✓			✓	✓
Jalkunan									
Jamul Tiipay	✓	✓	✓					✓	
Jarawa								✓	
Jingulu	✓	✓						✓	
Kabba									
Kakua	✓	✓							
Kamsá	✓	✓							
Kanoê		✓							✓
Karo	✓	✓		✓				✓	
Katukina-Kanamari	✓	✓				✓	✓	✓	✓
Kayardild	✓	✓	✓		✓			✓	
Keresan (Western)	✓	✓							✓
Ket								✓	✓
Kewapi			✓					✓	✓
Khimt’anga		✓			✓			✓	✓
Khmer (Central)			✓					✓	
Kilen		✓			✓			✓	
Konai								✓	
Konso				✓				✓	
Korafe									
Korean			✓	✓	✓			✓	
Kulina		✓						✓	✓
Kunuz Nubian					✓			✓	✓
Kutenai	✓	✓	✓	✓				✓	✓
Kwaza	✓	✓	✓					✓	✓
Lamaholot						✓			
Lao									
Lavukaleve		✓		✓				✓	
Lawa (Eastern)									
Lepcha								✓	

(4/7)	REFL	RECP	ANTC	PASS		ANTP		CAUS	APPL
				(+Abs)	(-Abs)	(+Abs)	(-Abs)		
Limilngan									
Lumun	✓	✓	✓		✓	✓		✓	✓
Luwo				✓			✓	✓	
Ma'di						✓		✓	
Madurese		✓						✓	✓
Majang			✓	✓		✓			
Makah		✓						✓	✓
Makalero						✓		✓	
Makassarese		✓	✓		✓			✓	✓
Malayalam			✓		✓			✓	
Mamaindê	✓	✓						✓	✓
Mambay						✓		✓	
Mangarrayi	✓	✓				✓			
Mani	✓							✓	✓
Mano									
Mansi (Northern)	✓	✓	✓		✓			✓	
Mapuche	✓	✓		✓				✓	✓
Marind		✓	✓						✓
Matngele		✓						✓	
Mauwake								✓	✓
Maybrat								✓	
Mehek									
Menggwa Dla									
Menya	✓	✓						✓	✓
Mian		✓							✓
Mixe (Ayutla)	✓	✓		✓				✓	✓
Mixtec (Chalcatongo)								✓	
Moba								✓	
Molalla	✓	✓	✓		✓			✓	✓
Momu		✓						✓	
Mongolian		✓	✓		✓			✓	
Mosetén	✓	✓	✓	✓	✓		✓	✓	✓
Moskona		✓	✓					✓	✓
Motuna		✓						✓	✓
Movima	✓	✓					✓	✓	✓
Murui					✓			✓	
Musqueam	✓	✓	✓		✓		✓	✓	✓
Mutsun	✓	✓	✓	✓				✓	✓
Nahuatl (Huasteca)	✓	✓	✓	✓			✓	✓	✓

(5/7)	REFL	RECP	ANTC	PASS		ANTP		CAUS	APPL
				(+Abs)	(-Abs)	(+Abs)	(-Abs)		
Nakkara	✓	✓							
Ngandi	✓	✓		✓				✓	✓
Ngan'gityemerri								✓	✓
Ngbaka (Manza)									
Ngiti			✓					✓	
Nihali								✓	
Nivkh	✓	✓	✓					✓	
Nunggubuyu	✓	✓	✓			✓		✓	✓
Nungon		✓							
Nxa'amxcin	✓	✓			✓			✓	✓
Oksapmin	✓	✓	✓				✓	✓	✓
Oro Waram									
Otomí (Acazulco)	✓	✓	✓	✓		✓		✓	✓
Páez	✓	✓		✓				✓	✓
Panare	✓	✓	✓		✓		✓	✓	
Paresi-Haliti	✓	✓	✓					✓	✓
Pilagá	✓	✓		✓					✓
Pima Bajo								✓	✓
Puinave	✓	✓						✓	
Pumi (Northern)		✓	✓					✓	
Quechua (Yauyos)	✓	✓		✓				✓	✓
Rabha		✓			✓			✓	
Rama			✓					✓	
Rotokas	✓	✓	✓					✓	
Sahaptin (Northern)	✓	✓						✓	✓
Sakun						✓			
Sanapaná									
Sandawe	✓	✓	✓	✓				✓	✓
Savosavo			✓						✓
Semelai		✓		✓				✓	✓
Sheko		✓	✓		✓			✓	
Sidaama		✓	✓		✓			✓	
Skou									
Southern Pomo		✓		✓				✓	
Stieng (Bulo)									
Tafi									
Tanacross	✓	✓			✓	✓		✓	
Tanimuka								✓	
Tariana	✓	✓			✓			✓	

(6/7)	REFL	RECP	ANTC	PASS		ANTP		CAUS	APPL
				(+Abs)	(-Abs)	(+Abs)	(-Abs)		
Tatar	✓	✓	✓		✓	✓		✓	
Teiwa									
Telugu	✓	✓	✓					✓	
Teribe								✓	
Ternate	✓	✓	✓					✓	✓
Tiwi (Traditional)	✓	✓						✓	✓
Totonac (Filomeno Mata)	✓	✓	✓	✓			✓	✓	✓
Trumai									
Ts'ixa	✓	✓		✓				✓	✓
Tulil									
Ubykh		✓				✓		✓	✓
Udmurt	✓	✓	✓		✓	✓		✓	
Uduk				✓					
Ulwa					✓	✓			
Una		✓						✓	
Urarina	✓		✓		✓			✓	
Urim									✓
Ute				✓				✓	✓
Wagiman		✓							
Wampis	✓	✓	✓					✓	✓
Wano	✓	✓							
Wapishana	✓	✓						✓	
Wappo								✓	
Waray	✓	✓							
Wardaman	✓	✓							
Warihio			✓		✓			✓	✓
Welsh					✓				
Wolaytta	✓	✓	✓		✓			✓	
Wooi									✓
Xong (Western)		✓							
!Xun (Western)		✓						✓	✓
Yagua		✓						✓	✓
Yanda Dom	✓		✓	✓				✓	
Yeri	✓	✓	✓						✓
Yimas		✓	✓					✓	✓
Yine	✓	✓		✓			✓	✓	✓
Yongning Na		✓							
Yuchi	✓	✓							✓
Yukaghir (Tundra)	✓	✓						✓	✓

(7/7)	REFL	RECP	ANTC	PASS		ANTP		CAUS	APPL
				(+Abs)	(-Abs)	(+Abs)	(-Abs)		
Yupik (Central Alaskan)		✓			✓		✓	✓	✓
Yaathê		✓						✓	
Zapotec (Zoochina)			✓					✓	✓

Appendix C: Attestations of voice syncretism

This appendix lists the attestations of patterns of voice syncretism in the language sample of this dissertation alphabetically according to language. More information about the individual languages can be found in appendix A, while the definitions according to which the voices have been identified are discussed in §2.2. Note that a tilde (~) indicates reduplication, and an obelus (†) indicates voice marking characterised as unproductive in the original source. Note also that dotted underlining in the passive and antipassive columns indicates *absolute* passive or antipassive voice marking, while lack of dotted underlining in the said columns indicates *non-absolute* passive or antipassive voice marking.

(1/4)		REFL	RECP	ANTC	PASS	ANTP	CAUS	APPL
Ainu	1a			*-ke*			*-ke*	
	3						*-e*	*e-*
Alamblak	3						*hay-*	*-hay*
Arabic (Darfur)	1a			*in-*	*in-*			
	1a	*it-*	*it-*	*it-*				
Arapaho	1a	*-eti*	*-eti*					
	1a				*-ee*	*-ee*		
Armenian (Eastern)	1a	*-v*	*-v*	*-v*	*-v*			
Arrernte (Mparnt.)	1a	*-lhe*		*-lhe*				
	1a						*-lhile*	*-lhile* †
Assiniboine	2		*kicʰi-*					*ki-, kíci-*
Balanta (Ganja)	1a			*-l*	*-l*			
	1b					*-t*	*-t*	
Baraïn	1a		*-ɟó*		*-ɟó*			
Bardi	1a	*-inyji*	*-inyji*					
Bininj Gun-Wok	1a	*-rr(e)*	*-rr(e)*					
Bora	1a	*-meí*			*-meí*			
Chabu	1a	*-we*			*-we*			
	1a						*-mba*	*-mba*
Chácobo	1a	*-ɨ, -o*		*-ɨ, -o*	*-ɨ, -o*			
	1a, 2				*-ʔaká*		*-ʔak*	*-ʔak*
Cherokee	1a, 1b	*at(aa)-* */ataat-*	*at(aa)-* */ataat-*	*at(aa)-* */ali-*		*at(aa)-* */ataat-*		
Chimariko	1a	*-yeʔw*	*-yeʔw*					
Chukchi	1a	*-tku*	*-tku*	*-tku*		*-tku*		
	1a					*ine-*		*ine-*
	1a, 2	*-et*		*-et* †			*-n-…-et*	

(2/4)		REFL	RECP	ANTC	PASS	ANTP	CAUS	APPL
Cupeño	1a			*-yax*	*-yax*			
Danish	1a		*-s*	*-s*	*-s*			
Dazaga	1a	*-t*		*-t*				
Dhimal	1a	*-nha*		*-nha*	*-nha*			
Emerillon	1a 1a	*ze-*	*ze-*				 *elo-*	 *elo-*
Enindhilyakwa	1a	*-jungwV*		*-jungwV*				
Ese Ejja	1a	*xa-...-ki*	*xa-...-ki*	*xa-...-ki*		*xa-...-ki*		
Finnish	1a 2	*-UtU*		*-UtU*	 *-tA-An*		 *-tA*	
Fwe (Namibian)	1a 1a	*rí-*	*rí-*				 *-is/-es*	 *-is/-es*
Galo	1a, 2	*-hí*	*(-rɨk)-hí*					*-rɨk*
Garifuna	1a	*-gwa*	*-gwa*	*-gwa*				
Gayo	2		*bersi-... -(n)en*				*-(n)en*	
Great Andamanese	1a 2	 *ɛm-/em-*	 *ɛr-em-*				*ta=*	*ta=*
Gurr-Goni	1a	*-yi*	*-yi*	*-yi*				
Gaagudju	1a 1a	*-gi* † *-y*	*-gi* † *-y*	*-gi* †				
Hamar	1a		*-Vm*	*-Vm* †				
ǂHòã	2				*kì-*		*kí-*	
Huave (S. F. d. M.)	1a 1b	*-(e)y*	*-(e)y*		 *-Vch*		 *-V(j)ch*	
Humburi Senni	1a				*-éyndí*		*-éyndí*	
Hup	1a 3	*hup-*	*hup- ʔũh-*		*hup-*			 *-ʔũh*
Ika	1a	*rina-*	*rina-*					
Irabu	1a				*-(C)ai*			*-(C)ai*
Jamul Tiipay	1a	*mat-*	*mat-*	*mat-*				
Jingulu	1a	*-nku*	*-nku*					
Kakua	1a	*mĭk-*	*mĭk-*					
Kamsá	1a	*en-*	*en-*					
Katukina-Kanamari	1a	*-i/-k/-hik*	*-i/-k/-hik*			*-i/-k/-hik*		
Kayardild	1a	*-yii/-V*		*-yii/-V*	*-yii/-V*			
Khimt'anga	2 2		 *-ʃit ~*		 *-ʃit*		*-(ɨ)s*	*~ -(ɨ)s*
Kilen	1a				*-wu*		*-wu*	
Konso	2				*-aɗ*		*-acciis*	
Korean	1a 1a			*-(C)i -eci*	*-(C)i -eci*		*-(C)i*	

(3/4)		REFL	RECP	ANTC	PASS	ANTP	CAUS	APPL
Kulina	2		*ka- ~, ka-…-ˆra*					*ka-*
Kutenai	1a 1b 2	 *-m-ik*		 *-p/-ʔ*	*-(i)ɬ*		*-(i)ɬ* *-ʔ*	*-(i)ɬ* *-m-aɬ*
Kwaza	1a 2	*-nỹ*		*-nỹ*			 *-dy*	 *=wady*
Lumun	1a 1a 1a	*-(a)kɔ*	 *-ttɔ* *-(a)rɔ*	*-(a)kɔ*	*-(a)kɔ*	 *-ttɔ* *-(a)rɔ*		
Madurese	2		*~ -an*					*ka-...-an*
Majang	1a			*-(ɗ)iːᴸ*		*-(ɗ)iːᴸ*		
Makalero	1a					*-ini*	*-ini*	
Mangarrayi	1a 1a	*-(ñ)ijy(i)* *-y(i)*	*-(ñ)ijy(i)* *-y(i)*			*-(ñ)ijy(i)*		
Mansi (Northern)	1a 1a	*-χat/-aχt*	*-χat/-aχt*	 *-l*			 *-l*	
Mapuche	1a	*-(u)w*	*-(u)w*					
Mixe (Ayutla)	1a 1a 1a	*nay-*	*nay-*		*ak-*		*ak-* *a-*	 *a-*
Molalla	1a	*ha-*	*ha-*					
Mongolian	1a				*-UUl*		*-UUl*	
Mosetén	1a,2,3 1a	*-ti*	*-ti*	 *-ki*	*ja-...-ti* *-ki*	 *-ki*		*ti-*
Moskona	1a						*er-*	*er-*
Movima	1a 1a, 2	*-cheł* *-ki(-kweł)*	*-cheł* *-ki-kweł*					
Musqueam	1a 1a 1a 1a	*<θə>*		*<θə>* *-m*	*-m*		 *-nəxʷ* *-stəxʷ*	 *-nəxʷ* *-stəxʷ*
Nahuatl (Huasteca)	1a	*mo-*	*mo-*	*mo-*	*mo-*			
Nakkara	1a	*-(ndji)ya*	*-(ndji)ya*					
Ngandi	1a	*-(y)i*			*-(y)i*			
Ngan’gityemerri	1a						*mi-*	*mi-*
Nivkh	1a 3	*pʰ-*	 *u-*	*pʰ-*			 *-u*	
Nunggubuyu	1a 1a, 3	*-i* *-nʸji*	 *-nʸji*	*-i*		*-i* *-nʸji*		 *anʸji-*
Oksapmin	1a	*t-*		*t-*		*t-*		

(4/4)		REFL	RECP	ANTC	PASS	ANTP	CAUS	APPL
Otomí (Acazulco)	1a 1a	*n-/nt(x)-*	*n-/nt(x)-*	*n-/nt(x)-*		*n-/nt(x)-*	 <*h*>	 <*h*>
Páez	1a	*jaʔ-*	*jaʔ-*		*jaʔ-*			
Panare	1a 1a	*Vs-* *Vt-*	*Vs-*	*Vs-* *Vt-*				
Paresi-Haliti	1a, 2	*-oa*	*-kakoa*	*-oa*				
Pilagá	2	*-l'at*	*-'at*					
Pima Bajo	1a						*-id/-di*	*-id/-di*
Quechua (Yauyos)	1a, 2	*-kU*	*-na-kU*		*-kU*			
Rotokas	1a	*ora-*	*ora-*					
Sandawe	1a 1b	*-ts'ị̀*			*-ts'ị̀*		 *-kw*	 *-kw*
Semelai	1a, 2		*b(r)- ~*		*b(r)-*			
Sheko	2		*-s-ṇ*	*-ṇ*			*-s*	
Sidaama	1a		*-am*	*-am*	*-am*			
Tanacross	2	*ʔede-* *+ l-/t-*	*niɬ-* *+ l-/t-*		*l-/t-*			
Tariana	1a	*-kaka* †	*-kaka*					
Tatar	1a 1a 1a	*-n*	 *-š*	*-n* *-l*	*-n* *-l*	*-n* *-š*		
Telugu	1a	*-kon(n)*	*-kon(n)*	*-kon(n)*				
Ternate	1a,2 1a	*ma-*	*maku-*	*ma-*			 *si-*	 *si-*
Totonac (Fil. Mata)	1a	*-kan*			*-kaɲ*			
Ubykh	1a						*ʁɜ-*	*ʁɜ-*
Udmurt	1a	*-śk*	*-śk*	*-śk*	*-śk*	*-śk*		
Urarina	1a	*ne-*		*ne-*				
Wampis	2		*-na-i*	*-na*				
Wardaman	1a	*-yi*	*-yi*					
Wolaytta	1a, 1b	*-ett/-étt*	*-ett/-étt*		*-ett/-étt*		*-ett*	
!Xun (Western)	1a		*-ā*					*-ā*
Yanda Dom	1a 1a	*-yV*		*-yV*	 *-mɛ́* †		 *-mɛ́*	
Yeri	1a	*d-*	*d-*	*d-*				
Yine	1a, 2		*-kaka*		*-kạ*		*-kaka*	
Yuchi	1a		*k'a-*					*k'a-*
Yukaghir (Tundra)	1a						*-re*	*-re*
Yupik (C. Alaskan)	1a 1a		*-ut*			*-ut* *-i*		*-ut* *-i*

10 References

— A —

Abbi, Anvita. 2013. A Grammar of the Great Andamanese Language: An Ethnolinguistic Study. Leiden/Boston: Brill.

Abbott, Miriam. 1991. Macushi. In D. C. Derbyshire & G. K. Pullum (eds.), Handbook of Amazonian Languages, Vol. 3, pp. 23–160. Berlin/New York: Mouton de Gruyter.

Abdel-Hafiz, Ahmed S. 1988. A Reference Grammar of Kunuz Nubian. State University of New York. [PhD]

Abu-Chacra, Faruq. 2007. Arabic: An Essential Grammar. London/New York: Routledge.

Ahland, Colleen A. 2012. A Grammar of Northern and Southern Gumuz. University of Oregon. [PhD]

Ahn, Mikyung & Yap, Foong H. 2017. From middle to passive: A diachronic analysis of Korean -eci constructions. Diachronica 34 (4), pp. 436–469.

Aikhenvald, Alexandra Y. 2003. A Grammar of Tariana. Cambridge: Cambridge University Press.

———— 2007a. Reciprocal and reflexives in North-Arawak languages of the Upper Rigo Negro (Warekena, Bare, Baniwa of Içana). In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 2, pp. 845–855. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2007b. Reciprocal and sociative in Tariana: Their genetic and areal properties. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 3, pp. 1351–1366. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Aksenova, I. S. 1994. Glagol. In I. S. Aksenova & I. N. Toporova (eds.), Jazyk kurija, pp. 129–166. Moscow: Vostočnaja literatura.

Alpatov, Vladimir M.; Bugaeva, Anna Ju. & Nedjalkov, Vladimir P. Reciprocals and sociatives in Ainu. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 4, pp. 1751–1822. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Alpher, Barry; Evans, Nicholas & Harvey, Mark. 2003. Proto Gunwinyguan verb suffixes. In N. Evans (ed.), The Non-Pama-Nyungan Languages of Northern Australia: Comparative Studies of the Continent's Most Linguistically Complex Region, pp. 305–352. Canberra: Australian National University.

Álvarez, Juan J. V. 2011. A Grammar of Chol, a Mayan Language. University of Texas. [PhD]

Ambouroue, Odette. 2007. Eléments de description de l'orungu: Langue bantu du Gabon (B11b). Free University of Brussels. [PhD]

Anderson, John; Anderson, Joy & Langacker, Ronald W. 1976. Non-Distinct Subjects and Objects in Northern Paiute. Revista de Letras 18, pp. 11–21.

Andrews, Avery. 1985. The major functions of the noun phrase. In T. Shopen (ed.), Language Typology and Syntactic Description, Vol. 1: Clause Structure, pp. 62–154. Cambridge: Cambridge University Press.

———— 2007. The major functions of the noun phrase. In T. Shopen (ed.), Language Typology and Syntactic Description, Vol. 1: Clause Structure, pp. 132–223. Cambridge: Cambridge University Press.

Anonby, Erik J. 2008. Phonology and Morphology of Mambay (Niger-Congo, Adamawa). Leiden University. [PhD]

Apontes, Selmo A. 2015. Descrição grammatical do Oro Waram, variante Wari' Norte (Pakaa nova, Txapakura): Fonologia, morfologia e sintaxe. UFMG. [PhD]

Applegate, Richard B. 1972. Ineseño Chumash Grammar. University of California. [PhD]

Arıkoğlu, Ekrem. 2007. Hakas Türkçesi. In A. B. Ercilasun (ed.), Türk Lehçeleri Grameri, pp. 1085–1147. Ankara: Akçağ Yayınları.

Arka, I Wayan & Ross, Malcolm. 2005. Introduction. In I W. Arka & M. Ross (eds.), The Many Faces of Austronesian Voice Systems: Some New Empirical Studies, pp. 1–17. Canberra: Australian National University.

Arkadiev, Peter & Lander, Yury. 2018. The Northwest Caucasian Languages. In M. Polinsky (ed.), The Oxford Handbook of the Languages of the Caucasus. Oxford: Oxford University Press. [ms.]

Armendáriz, Rolando G. F. 2005. A Grammar of River Warihío. Rice University. [PhD]

Arnott, D. W. 1956. The Middle Voice in Fula. Bulletin of the School of Oriental and African Studies 18 (1), pp. 130–144.

Årsjö, Britten. 2016. Konai Reference Grammar. Summer Institute of Linguistics.

Asher, R. E. & Kumari, T. C. 2003. Malayalam. London/New York: Routledge.

Assefa, Tesfaye B. 2015. A Descriptive Grammar of Burji. Addis Ababa University. [PhD]

Austin, Peter K. 1982. Transitivity and cognate objects in Australian languages. In P. Hopper & S. Thompson (eds.), Studies in Transitivity, pp. 37–47. Syntax and Semantics 15. New York: Academic Press.

———— 2005. Causative and Applicative Constructions in Australian Aboriginal Languages. [ms.]

———— 2013. A Grammar of Diyari, South Australia. [ms.]

Axenov, Serge. 2006. The Balochi Language of Turkmenistan: A Corpus-Based Grammatical Description. Studia Iranica Upsaliensia. Uppsala: Uppsala University.

— B —

Bacelar, Laércio N. 2004. Gramática da língua Kanoê. Nijmegen: Katholieke Universiteit Nijmegen. [PhD]

Bakker, Dik. 2010. Language sampling. In J. J. Song (ed.), The Oxford Handbook of Linguistic Typology, pp. 100–127. Oxford: Oxford University Press.

Barasa, David. 2017. Ateso Grammar: A Descriptive Account of an Eastern Nilotic Language. of Cape Town. [PhD]

Barber, E. J. W. 1975. Voice: Beyond the passive. Proceedings of the First Annual Meeting of the Berkeley Linguistics Society, pp. 16–24.

Barbour, Julie. 2012. A Grammar of Neverver. Berlin/New York: De Gruyter Mouton.

Barlow, Russell. 2018. A Grammar of Ulwa. University of Hawai‘i at Mānoa. [PhD]

Bartens, Raija. 2000. Permiläisten kielten rakenne ja kehitys. Helsinki: Suomalais-ugrilainen seura.

Basilico, David. 2019. Antipassive adds an argument. Open Linguistics 5, pp. 191–216.

Bastin, Y. 1986. Les suffixes causatifs dans les langues Bantoues. Africana Linguistics 10, pp. 61–145.

Beck, David. 2009. A taxonomy and typology of Lushootseed valency-increasing suffixes. International Journal of American Linguistics 75 (4), pp. 533–569.

———— n.d. Totonacan Languages. [ms.]

Belay, Teshome. 2015. A Grammar of Khimt’anga. Addis Ababa University. [PhD]

Bell, Alan. 1978. Language samples. In J. H. Greenberg (ed.), Universals of Human Language, Vol. 1: Method & Theory, pp. 123–156. Stanford: Stanford University Press.

Benton, Richard A. 1971. Pangasinan Reference Grammar. Honolulu: University of Hawai‘i Press.

Berghäll, Liisa. 2015. A Grammar of Mauwake. Studies in Diversity Linguistics 4. Berlin: Language Science Press.

Berkov, V.P. 1985. Refleksivy v skandinavskix jazykax. In V. P. Nedjalkov (ed.), Refleksivnye glagoly v indoevropejskix jazykax, pp. 56–74. Kalinin: Kalininskij gosudarstvennyj universitet.

Bickel, Balthasar. 2011. Grammatical relations typology. In J. J. Song (ed.), The Oxford Handbook of Linguistic Typology, pp. 399–444. Oxford: Oxford University Press.

Bickel, Balthasar & Nichols, Johanna. 2009. Case marking and alignment. In A. Malchukov & A. Spencer (eds.), The Oxford Handbook of Case, pp. 304–321. Oxford: Oxford University Press.

Bickel, Balthasar; Rai, Manoj; Paudyal, Netra P.; Banjade, Goma; Bhatta, Toya N.; Gaenszle, Martin; Lieven, Elena; Purna Rai, Ichchha; Kishore Rai, Novel & Stoll, Sabine. 2010. The syntax of three-argument verbs in Chintang and Belhare (Southeastern Kiranti). In A. Malchukov, M. Haspelmath & B. Comrie (eds.), Studies in Ditransitive Constructions: A Comparative Handbook, pp. 382–408. Berlin/New York: De Gruyter Mouton.

Blackings, Mairi & Fabb, Nigel. 2013. A Grammar of Ma'di. Berlin/New York: Mouton de Gruyter.

Blok, Greg. 2013. A Descriptive Grammar of Eastern Lawa. Payap University. [MA]

Bobuafor, Mercy. 2013. A Grammar of Tafi. Leiden University. [PhD]

Bolaños, Katherine. 2016. A Grammar of Kakua. University of Amsterdam. [PhD]

Bon, Noëllie. 2014. Une grammaire de la language stieng: Langue en danger du Cambodge et du Vietnam. Université Lumière Lyon 2. [PhD]

Borsley, Robert D.; Tallerman, Maggie & Willis, David. 2007. The Syntax of Welsh. Cambridge: Cambridge University Press.

Bostoen, Koen; Dom, Sebastian & Segerer, Guillaume. 2015. The antipassive in Bantu. Linguistics 53 (4), pp. 731–772.

Boswell, Fredrick A. 2018. A Grammar of Cheke Holo. Leiden University. [PhD]

Botne, Robert D. O. 2003. Lega. In D. Nurse & G. Philippson (eds.), The Bantu Languages, pp. 422–449. London/New York: Routledge.

Bowern, Claire L. 2012. A Grammar of Bardi. Berlin/Boston: De Gruyter Mouton.

Bradshaw, Robert L. 2007. Fuyug Grammar Sketch. Ukarumpa: Summer Institute of Linguistics.

Brandão, Ana P. B. 2014. A Reference Grammar of Paresi-Haliti (Arawak). University of Texas. [PhD]

Bril, Isabelle. 2005. Semantic and functional diversification of reciprocal and middle prefixes in New Caledonian and other Austronesian languages. Linguistic Typology 9, pp. 25–76.

———— 2007. Reciprocal constructions in Nêlêmwa (New Caledonia). In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 3, pp. 1479–1509. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Brown, Dunstan; Chumakina, Marina & Corbett, Greville (eds.). 2013. Canonical Morphology and Syntax. Oxford: Oxford University Press.

Bruce, Leslie P. 1979. A Grammar of Alamblak (Papua New Guinea). Australian National University. [PhD]

Bryant, Michael G. 1999. Aspects of Tirmaga Grammar. The University of Texas. [MA]

Bugaeva, Anna Ju. 2004. Grammar and Folklore Texts of the Chitose Dialect of Ainu (Idiolect of Ito Oda). ELPR Publication Series A-045. Suita: Osaka Gakuin University.

———— 2015. Causative constructions in Ainu: A typological perspective with remarks on diachrony. STUF 68 (4), pp. 439–484.

Burgess, Don. 1984. Western Tarahumara. In R. W. Langacker (ed.), Studies in Uto-Aztecan Grammar: Southern Uto-Aztecan Grammatical Sketches, Vol. 4, pp. 1–149. San Diego: Summer Institute of Linguistics.

Burung, Willem. 2017. A Grammar of Wano. University of Oxford. [PhD]

— C —

Caballero, Gabriela. 2008. Choguita Rarámuri (Tarahumara) Phonology and Morphology. University of California. [PhD]

Cáceres, Natalia. 2011. Grammaire fonctionelle-typologique du ye'kwana. Lyons: Université Lumière Lyon 2. [PhD]

Chafe, Wallace L. 1960. Seneca Morphology IV: Expanded bases. International Journal of American Linguistics 26 (4), pp. 283–289.

Chang, Suk-Jin. 1996. Korean. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Chapman, Shirley & Derbyshire, Desmond. 1991. Paumarí. In D. C. Derbyshire & G. K. Pullum (eds.), Handbook of Amazonian Languages, Vol. 3, pp. 161–352. Berlin/New York: Mouton de Gruyter.

Charney, Jean O. 1993. A Grammar of Comanche. Lincoln/London: University of Nebraska Press.

Chavula, Jean J. 2016. Verbal Derivation and Valency in Citumbuka. Leiden University. [PhD]

Childs, G. Tucker. 1995. A Grammar of Kisi: A Southern Atlantic Language. Berlin/New York: Mouton de Gruyter.

———— 2011. A Grammar of Mani. Berlin/Boston: De Gruyter Mouton.

Collinder, Björn. 1969. Comparative Grammar of the Uralic Languages. Stockholm: Almqvist & Wiksell.

Collins, Chris & Gruber, Jeffrey S. 2014. A Grammar of ǂHòã. Cologne: Rüdiger Köppe Verlag.

Comrie, Bernard. 1981. Language Universals and Linguistic Typology: Syntax and Morphology. Oxford: Blackwell.

———— 1988. Passive and voice. In M. Shibatani (ed.), Passive and Voice, pp. 9–23. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 1989. Language Universals and Linguistic Typology: Syntax and Morphology. 2nd ed. Oxford: Blackwell.

———— 1993. Argument Structure. In J. Jacbos, A. von Stechow, W. Sternefeld & T. Vennemann (eds.), Syntax: An International Handbook of Contemporary Research, pp. 905–914. Berlin/New York: Walter de Gruyter.

———— 2006. Transitivity pairs, markedness, and diachronic stability. Linguistics 44 (2), pp. 303–318.

Comrie, Bernard & Polinsky, Maria. 1993. Preface. In B. Comrie & M. Polinsky (eds.), Causatives and Transitivity, pp. vii–viii. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Cook, Anthony R. 1987. Wagiman Matyin: A Description of the Wagiman Language of the Northern Territory. La Trobe University. [PhD]

Cooreman, Ann. 1994. A functional typology of antipassives. In B. Fox & P. Hopper (eds.), Voice: Form and Function, pp. 49–88. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Copin, François. 2012. Grammaire wayampi: famille tupi-guarani. Paris: Université Paris 7 Denis Diderot. [PhD]

Coupez, André. 1985. La dérivation verbale en rwanda (bantou J.61). In Y. Cadiou (ed.), Le Kinyarwanda: études de morpho-syntaxe, pp. 7–41. Louvain: Editions Peeters.

Corbett, Greville. 2003a. Agreement: Canonical instances and the extent of the phenomenon. In G. Booij, J. DeCesaris, A. Ralli & S. Scalise (eds.), Topics in Morphology: Selected Papers from the Third Mediterranean Morphology Meeting (Barcelona, September 20-22, 2001), pp. 109–128. Barcelona: Institut Universitari de Lingüística Aplicada, Universitat Pompeu Fabra.

———— 2003b. Agreement: The Range of the Phenomenon and the Principles of the Surrey Database of Agreement. Transactions of the Philological Society 101 (2), pp. 155–202.

———— 2005. The Canonical Approach in Typology. In Z. Frajzyngier, A. Hodges & D. Rood (eds.), Linguistic Diversity and Language Theories, pp. 25–49. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2007. Canonical Typology, Suppletion, and Possible Words. Language 83 (1), pp. 8–42.

———— 2013. Canonical morphosyntactic features. In D. Brown, M. Chumakina & G. Corbett (eds.), Canonical Morphology and Syntax, pp. 48–65. Oxford: Oxford University Press.

Corris, Miriam. 2006. A Grammar of Barupu: A Language of Papua New Guinea. University of Sydney. [PhD]

Cowell, Andrew & Moss Sr., Alonzo. 2008. The Arapaho Language. Boulder: University Press of Colorado.

Crass, Joachim. 2005. Das K'abeena: Descriptive Grammatik einer hochlandostkuschitischen Sprache. Cologne: Rüdiger Köppe Verlag.

Creissels, Denis. 2006. Syntaxe Générale, une introduction typologique. Paris: Lavoisier-Hermès Science.

———— 2012. The origin of antipassive markers in West Mande languages. 45th Annual Meeting of the Societas Linguistica Europaea (Stockholm 2016). [ms.]

———— 2015. Reconstructing the history of the Soninke voice system. Syntax of the World's Languages 6 (Pavia, September 2014). [ms.]

———— 2016. Transitivity, Valency, and Voice. Compendium for the European Summer School in Linguistic Typology (Porquerolles, September 2016). [ms.]

———— 2018. Current issues in African morphosyntactic typology. In T. Güldemann (ed.), The Languages and Linguistics of Africa, pp. 712-821. Berlin/Boston: De Gruyter Mouton.

Creissels, Denis & Biaye, Séckou. 2016. Le balant ganja: Phonologie, morphosyntaxe, liste lexicale, textes. Dakar: IFAN CH. A. DIOP.

Creissels, Denis & Diagne, Anne M. 2013. Transitivity in Bakel Soninke. Mandenkan 50, pp. 5–38.

Creissels, Denis & Nouguier-Voisin, Sylvie. 2008. Valency-changing operations in Wolof and the notion of "co-participation." In E. König & V. Gast (eds.), Reciprocals and Reflexives: Theoretical and Typological Explorations, pp. 289–305. Berlin/New York: Mouton de Gruyter.

Croft, William. 1990. Typology and Universals. Cambridge: Cambridge University Press.

———— 1995. Modern syntactic typology. In M. Shibatani & T. Bynon (eds.), Approaches to Language Typology, pp. 85–144. Oxford: Clarendon.

———— 2001. Radical Construction Grammar: Syntactic Theory in Typological Perspective. Oxford: Oxford University Press.

———— 2003. Typology and Universals. 2nd ed. Cambridge: Cambridge University Press.

———— 2012. Verbs: Aspect and Causal Structure. Oxford: Oxford University Press.

Crum, Beverly & Dayley, Jon P. 1993. Western Shoshoni Grammar. Boise: Boise State University.

Culy, Christopher & Fagan, Sarah M. B. 2001. The history of the middle in Dogon. Studies in African Linguistics 30 (2), pp. 171–194.

Cumberland, Linda A. 2005. A Grammar of Assiniboine: A Siouan Language of the Northern Plains. Indiana University. [PhD]

Curnow, Timothy J. 1997. A Grammar of Awa Pit (Cuaiquer): An Indigenous Language of South-Western Colombia. Australian National University. [PhD]

— D —

da Costa, Januacele F. 1999. Ya:thê, a última língua nativa no nordeste do Brasil: Aspectos morfo-fonológicos e morfo-sintáticos. Universidade Federal de Pernambuco. [PhD]

Dahl, Östen. 2008. An exercise in a posteriori language sampling. STUF 61 (3), pp. 208–220.

Daudey, Henriëtte. 2014. A Grammar of Wadu Pumi. La Trobe University. [PhD]

Davidson, Matthew. 2002. Studies in Southern Wakashan (Nootkan) Grammar. State University of New York. [PhD]

Davies, William D. A Grammar of Madurese. Berlin/New York: De Gruyter Mouton.

Davis, Karen. 2003. A Grammar of the Hoava Language, Western Solomons. Canberra: Pacific Linguistics.

Dayley, Jon P. 1989. Tümpisa (Panamint) Shoshone Grammar. Berkeley/Los Angeles/Oxford: University of California Press.

de Kind, Jasper & Bostoen, Koen. 2012. The applicative in ciLubà grammar and discourse: A semantic goal analysis. Southern African Linguistics and Applied Language Studies 30 (1), pp. 101–124.

de Groot, Albert W. 1949. Structurele syntaxis. The Hague: Servire.

de Oliveira, Christiane C. 2005. The Language of the Apinajé People of Central Brazil. University of Oregon. [PhD]

de Rijk, Rudolf P. G. 2007. Standard Basque: A Progressive Grammar. Cambridge/London: The MIT Press.

de Sousa, Hilário. 2006. The Menggwa Dla Language. University of Sydney. [PhD]

Dienst, Stefan. 2014. A Grammar of Kulina. Berlin/Boston: De Gruyter Mouton.

Dik, Simon C. 1983. The status of verbal reflexives. In L. Tasmowski & D. Willems (eds.), Problems in Syntax, pp. 231–256. New York/London: Plenum Press.

———— 1997. The Theory of Functional Grammar, Part 1: The Structure of the Clause. 2nd ed. Functional Grammar Series 20. Berlin/New York: Mouton de Gruyter.

Dixon, R. M. W. 1972. The Dyirbal language of North Queensland. Cambridge: Cambridge University Press.

———— 1977. A Grammar of Yidiɲ. Cambridge: Cambridge University Press.

———— 1979. Ergativity. Language 55 (1), pp. 59–138.

———— 1980. The Languages of Australia. Cambridge: Cambridge University Press.

———— 1983. Nyawaygi. In R. M. W. Dixon & B. J. Blake (eds.), Handbook of Australian Languages, Vol. 3, pp. 431–525. Canberra: The Australian National University Press.

———— 1994. Ergativity. Cambridge: Cambridge University Press.

———— 2000. A typology of causatives: form, syntax and meaning. In R. Dixon & A. Aikhenvald (eds.), Changing Valency: Case Studies in Transitivity, pp. 30-83. Cambridge: Cambridge University Press.

———— 2002. Australian Languages. Cambridge: Cambridge University Press.

———— 2010a. Basic Linguistic Theory, Volume 1: Methodology. Oxford: Oxford University Press.

———— 2010b. Basic Linguistic Theory, Volume 2: Grammatical Topics. Oxford: Oxford University Press.

———— 2012. Basic Linguistic Theory, Volume 3: Further Grammatical Topics. Oxford: Oxford University Press.

Dixon, R. M. W. & Aikhenvald, Alexandra Y. 2000. Introduction. In R. Dixon & A. Aikhenvald (eds.), Changing Valency: Case Studies in Transitivity, pp. 1–29. Cambridge: Cambridge University Press.

———— 2011. A typology of argument-determined constructions. In A. Y. Aikhenvald & R. M. W. Dixon (eds.), Language at Large, pp. 45–85. Empirical Approaches to Linguistic Theory, Vol. 2. Leiden/Boston: 2011.

Dol, Philomena. 2007. A Grammar of Maybrat: A Language of the Bird's Head Peninsula, Papua Province, Indonesia. Australian National University.

Dom, Sebastian; Kulikov, Leonid & Bostoen, Koen. 2016. The middle as a voice category in Bantu: Setting the stage for further research. Lingua Posnaniensis 58 (2), pp. 129–149.

Donohue, Mark. 2004. A Grammar of the Skou Language of New Guinea. [ms.]

dos Anjos, Zoraide. 2011. Fonologia e Gramática Katukina-Kanamari. Vrije Universiteit Amsterdam. [PhD]

dos Santos, Manoel G. 2006. Uma gramática do Wapixana (Aruák): Aspectos da fonologia, da morfologia e da sintaxe. University of Campinas. [PhD]

Dowty, David R. 1991. Thematic proto-roles and argument selection. Language 67, pp. 547–619.

Dryer, Matthew. 1989. Large linguistic areas and language sampling. Studies in Language 13 (2), pp. 257–292.

———— 1992. The Greenbergian word order correlations. Language 68 (1), pp. 81–138.

———— 1997. Are grammatical relations universal? In J. Bybee, J. Haiman & S. Thompson (eds.), Essays on Language Function and Language Type: Dedicated to T. Givón, pp. 115–143. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2000. Counting genera vs. counting languages. Linguistic Typology 4, pp. 334–356.

———— 2005. Genealogical language list. In M. Haspelmath, M. Dryer, D. Gil & B. Comrie (eds.), The World Atlas of Language Structures, pp. 584–644. Oxford: Oxford University Press.

———— 2013. Genealogical language list. In M. Dryer & M. Haspelmath (eds.), The World Atlas of Language Structures. Leipzig: Max-Planck-Institut für evolutionäre Anthropologie.

———— 2016. Crosslinguistic categories, comparative concepts, and the Walman diminutive. Linguistic Typology 20 (2), pp. 305–331.

Dum-Tragut, Jasmine. 2009. Armenian. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Dunn, Michael J. 1999. A Grammar of Chukchi. Australian National University. [PhD]

Dyen, Isidore. 1965. A Sketch Grammar of Trukese. New Haven: American Oriental Society.

— E —

Eades, Domenyk. 2005. A Grammar of Gayo: A Language of Aceh, Sumatra. Australian National University.

Eather, Bronwyn. 2011. A Grammar of Nakkara (Central Arnhem Land Coast). Munich: Lincom.

Eaton, Helen. 2010. A Sandawe Grammar. Summer Institute of Linguistics.

Eberhard, David M. 2009. Mamaindê Grammar: A Northern Nambikwara Language and Its Cultural Context. Amsterdam: Vrije Universiteit Amsterdam. [PhD]

Emkow, Carola. 2006. A Grammar of Araona, an Amazonian Language of Northwestern Bolivia. La Trobe University. [PhD]

Enfield, N. J. 2007. A Grammar of Lao. Berlin/New York: Mouton de Gruyter.

Enrico, John. 2003. Haida Syntax. Lincoln/London: University of Nebraska Press.

Epps, Patience. 2008. A Grammar of Hup. Berlin/New York: Mouton de Gruyter.

Eraso, Natalia. 2015. Gramática tanimuka, una lengua de la Amazonía colombiana. Université Lumière Lyon 2. [PhD]

Evans, Nicholas. 1995. A Grammar of Kayardild. Berlin/New York: Mouton de Gruyter.

———— 2003. Bininj Gun-Wok: A Pan-Dialectal Grammar of Mayali, Kunwinjku and Kune. Canberra: Australian National University.

Evans, Nicholas; Levinson, Stephen C.; Gaby, Alice & Majid, Asifa. 2011. Introduction: Reciprocals and semantic typology. In N. Evans, A. Gaby, S. C. Levinson & A. Majid (eds.), Reciprocals and Semantic Typology, pp. 1–28. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Evans, Nicholas & Merlan, Francesca. 2003. Dalabon verb conjugations. In N. Evans (eds.), The Non-Pama-Nyungan Languages of Northern Australia: Comparative Studies of the Continent's Most Linguistically Complex Region, pp. 269–283. Canberra: Pacific Linguistics.

— F —

Faltz, Leonard M. 1985. Reflexivization: A Study in Universal Syntax. New York/London: Garland Publishing Inc.

Farr, Cynthia J. M. 1999. The Interface Between Syntax and Discourse in Korafe, A Papuan Language of Papua New Guinea. Canberra: Pacific Linguistics.

Farrell, Patrick. 2005. Grammatical Relations. Oxford: Oxford University Press.

Fedden, Sebastian. 2011. A Grammar of Mian. Berlin/Boston: De Gruyter Mouton.

Fehn, Anne-Maria. 2014. A Grammar of Ts'ixa (Kalahari Khoe). University of Cologne. [PhD]

Feldman, Harry. 1986. A Grammar of Awtuw. Canberra: Pacific Linguistics.

Fell, Brian. 2012. Applicatives and Incorporation in Ubykh. SKY Journal of Linguistics 25, pp. 61–92.

Fernández, Zarina E. 2014. Gramática de Referencia del Pima Bajo. Hermosillo: University of Sonora.

Field, Kenneth L. 1997. A Grammatical Overview of Santa Mongolian. University of California. [PhD]

Fleck, David W. 2002. Causation in Matses (Panoan, Amazonian Peru). In M. Shibatani (ed.), The Grammar of Causation and Interpersonal Manipulation, pp. 373–415. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Foley, William A. 1991. The Yimas Language of New Guinea. Stanford: Stanford University Press.

Forker, Diana. 2013. A Grammar of Hinuq. Berlin/Boston: De Gruyter Mouton.

———— 2014. A canonical approach to the argument/adjunct distinction. Linguistic Discovery 12 (2), pp. 27–40.

Fortescue, Michael. 2005. Comparative Chukotko-Kamchatkan Dictionary. Berlin/New York: Mouton de Gruyter.

———— 2007. Reciprocals in West Greenlandic Eskimo. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 2, pp. 813–842. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Fortescue, Michael; Jacobson, Steven & Kaplan, Lawrence. 1994. Comparative Eskimo Dictionary with Aleut Cognates. Fairbanks: Alaska Native Language Center.

Franco, Ludovico. 2019. A syntactic interpretation of the applicative-causative syncretism. Working Papers in Linguistics and Oriental Studies 5, pp. 107–134.

Frank, Paul S. 1985. A Grammar of Ika. University of Pennsylvania. [PhD]

Friend, Robert W. 2010. A Grammar of Bao'an Tu, a Mongolic Language of Northwest China. State University of New York. [PhD]

— G —

Gabas, Nilson. 1999. A Grammar of Karo, Tupí (Brazil). University of California. [PhD]

Gandon, Ophélie. 2013. Le suffixe verbal du réciproque en turc et dans les langues turciques : un marqueur polysémique. Université Lumière 2. [MA]

———— 2018. The verbal reciprocal suffix in Turkic languages and the development of its different values in M. A. Akıncı & Y. Kutlay (eds.), The Rouen Meeting: Studies on Turkic Structures and Language Contacts, pp. 29–43. Wiesbaden: Harrassowitz Verlag.

Ganiev, F. E. 1997. Rusča-tatarča suzlek. Moscow: Insan.

Geeraerts, Dick. 1989. Introduction: Prospects and problems of prototype theory. Linguistics 27, pp. 587–612.

Geniušienė, Emma. 1987. The Typology of Reflexives. Empirical Approaches to Language Typology 2. Berlin/New York/Amsterdam: Mouton de Gruyter.

Georg, Stefan. 2007. A Descriptive Grammar of Ket (Yenisei-Ostyak). Folkestone: Global Oriental.

Gerritsen, Nelleke. 1990. Russian Reflexive Verbs: In Search of Unity in Diversity. Amsterdam/Atlanta: Rodopi.

Gildea, Spike. 2015. The evolution of valence categories in the Cariban family. Venezuelan Cariban Conference, Lyon, May 2015.

Gildea, Spike; Cáceres, Natalia; Meira, Sérgio & Sapién, Racquel-María. 2016. Antipassive and semantic classes of verbs in the Cariban family. Annual Meeting of the Societas Linguistica Europaea, Naples, August-September 2016.

Givón, Talmy. 2001a. Syntax, Volume 1. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2001b. Syntax, Volume 2. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2006. Grammatical relations in passive clauses: A diachronic perspective. In W. Abraham & L. Leisiö (eds.), Passivization and Typology: Form and Function, pp. 337–350.

———— 2011. Ute Reference Grammar. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Gomes, Antonio A. S. 2013. Sanapaná, uma língua Maskoy: Aspectos gramaticais. University of Campinas. [PhD]

Goodenough, Ward H. & Sugita, Hiroshi. 1980. Trukese-English Dictionary: Pwpwuken Tettenin Fóos: Chuuk-Ingenes. Philadelphia: American Philosophical Society.

Gravelle, Gloria J. 2010. A Grammar of Moskona: An East Bird's Head Language of West Papua, Indonesia. Vrije Universiteit Amsterdam. [PhD]

Green, Rebecca. 1995. A Grammar of Gurr-Goni (North Central Arnhem Land). Australian National University. [PhD]

———— 2003. Proto Maningrida within Proto Arnhem: evidence from verbal inflectional suffixes. In N. Evans (ed.), The Non-Pama-Nyungan Languages of Northern Australia: Comparative Studies of the Continent's Most Linguistically Complex Region, pp. 369–421. Canberra: Australian National University.

Greenberg, Joseph H. 1963. Some Universals of grammar with Particular Reference to the Order of Meaningful Elements. In J. H. Greenberg (d.), Universals of Language, pp. 73–113. London: MIT Press.

———— 1966. Language Universals, with Special Reference to Feature Hierarchies. The Hague: Mouton.

Grinevald, Colette G. 1990. A Grammar of Rama. [ms.]

Guillaume, Antoine. 2008. A Grammar of Cavineña. Berlin/New York: Mouton de Gruyter.

Guillaume, Antoine & Rose, Françoise. 2010. Sociative causative markers in South American languages: a possible areal feature. In F. Floricic (ed.), Essais de typologie et de linguistique Générale: Mélanges offerts à Denis Creissels. Lyons: ENS Éditions.

Guirardello, Raquel. 1999. A Reference Grammar of Trumai. Rice University. [PhD]

Gunnink, Hilde. 2018. A Grammar of Fwe: A Bantu Language of Zambia and Namibia. Ghent University. [PhD]

— H —

Haiman, John. 2011. Cambodian (Khmer). Amsterdam/Philadelphia: John Benjamins Publishing Company.

Hammarström, Harald & Donohue, Mark. 2014. Some principles on the use of macro-areas in typological comparison. Language Dynamics and Change 4, pp. 167–187.

Hanson, Rebecca. 2010. A Grammar of Yine (Piro). La Trobe University. [PhD]

Harrison, Sheldon P. 1976. Mokilese Reference Grammar. Honolulu: The University Press of Hawaii.

Hartmann, Iren; Haspelmath, Martin & Taylor, Bradley. 2013. Valency Patterns Leipzig. Leipzig: Max Planck Institute for Evolutionary Anthropology.
⟶ Available online: http://valpal.info/

Harvey, Mark. 1986. Ngoni Waray Amungal-Yang: The Waray Language from Adelaide River. Australian National University. [MA]

———— 2001. A Grammar of Limilngan: A Language of the Mary River Region, Northern Territory, Australia. Canberra: Pacific Linguistics.

———— 2011. A Grammar of Gaagudju. Berlin/New York: Mouton de Gruyter.

Haspelmath, Martin. 1990. The grammaticization of passive morphology. Studies in Language 14 (1), pp. 25–72.

———— 1993. More on the typology of inchoative/causative verb alternations. In B. Comrie & M. Polinsky (eds.), Causatives and Transitivity, pp. 87–120. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2003. The geometry of grammatical meaning: Semantic maps and cross-linguistic comparison. In M. Tomasello (ed.), The New Psychology of Language: Cognitive and Functional Approaches to Language Structure, Vol. 2, pp. 211–242. Mahwah/London: Lawrence Erlbaum Associates, Publishers.

———— 2010a. Comparative concepts and descriptive categories in crosslinguistic studies. Language 86 (3), pp. 663–687.

———— 2010b. The interplay between comparative concepts and descriptive categories (Reply to Newmeyer). Language 86 (3), pp. 696–699.

———— 2011a. On S, A, P, T, and R as comparative concepts for alignment typology. Linguistic Typology 15, pp. 535–567.

———— 2011b. The indeterminacy of word segmentation and the nature of morphology and syntax. Folia Linguistica 45 (1), pp. 31–80.

———— 2014. Arguments and adjuncts as language-particular syntactic categories and as comparative concepts. Linguistic Discovery 12 (2), pp. 3–11.

———— 2016a. The challenge of making language description and comparison mutually beneficial. Linguistic Typology 20 (2), pp. 299–303.

———— 2016b. The Serial Verb Construction: Comparative Concept and Cross-Linguistic Generalizations. Language and Linguistics 17 (3), pp. 291–319.

———— 2018. How comparative concepts and descriptive linguistic categories are different. In D. Olmen, T. Mortelmans & F. Brisard (eds.), Aspects of Linguistic Variation, pp. 83–114. Berlin/Boston: De Gruyter.

———— 2019. Comparing reflexive constructions in the world's languages. [ms.]

Haspelmath, Martin & Hartmann, Iren. 2015. Comparing verbal valency across languages. In A. Malchukov & B. Comrie (eds.), Valency Classes in the World's Languages, Vol. 1.1: Introducing the Framework, and Case Studies from Africa and Eurasia, pp. 41–71. Berlin/Boston: De Gruyter Mouton.

Haspelmath, Martin & Müller-Bardey, Thomas. 2004. Valency change. In G. Booij, C. Lehmann, J. Mugdan, S. Skopeteas & W. Kesselheim (eds.), Morphologie: Ein internationals Handbuch zur Flexion und Wortbildung, Vol. 2, pp. 1130–1145. Berlin/New York: Walter de Gruyter.

Hatfield, Adam. 2016. A Grammar of Mehek. State University of New York. [PhD]

Haude, Katharina. 2006. A Grammar of Movima. Radboud University. [PhD]

Haurholm-Larsen, Steffen. 2016. A Grammar of Garifuna. University of Bern. [PhD]

Haviland, John. 1979. Guugu Yimidhirr. In R. M. W. Dixon & B. J. Blake (eds.), Handbook of Australian Languages, Vol. 1, pp. 27–180. Canberra: The Australian National University Press.

Hayami-Allen, Rika. 2001. A Descriptive Study of the Language of Ternate, The Northern Moluccas, Indonesia. University of Pittsburgh. [PhD]

Hayward, Richard J. 1984. A reconstruction of some root extensions of the Eastern Cushitic verb. In J. Bynon (ed.), Current Progress in Afro-Asiatic Linguistics, pp. 69–109. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Heath, Jeffrey. 1978. Ngandi Grammar, Texts, and Dictionary. New Jersey: Humanities Press Inc.

———— 1984. Functional Grammar of Nunggubuyu. Canberra: Pacific Linguistics.

———— 2014. A Grammar of Humburi Senni (Songhay of Hombori, Mali). [ms.]

———— 2017. A Grammar of Yanda Dom (Dogon, Mali). [ms.]

Heaton, Raina. 2017. A Typology of Antipassives, With Special Reference to Mayan. University of Hawai‘i at Mānoa. [PhD]

———— 2020. Antipassives in crosslinguistic perspective. Annual Review of Linguistics 6, pp. 131–153.

Heine, Bernd. 2000. Polysemy involving reflexive and reciprocal markers in African languages. In Z. Frajzyngier & T. Curl (eds.), Reciprocals: Forms and Functions, pp. 1–29. Typological Studies in Language 41. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Heine, Bernd & König, Christa. 2015. The !Xun Language: A Dialect Grammar of Northern Khoisan. Cologne: Rüdiger Köppe Verlag.

Heine, Bernd & Kuteva, Tania. 2002. World Lexicon of Grammaticalization. Cambridge: Cambridge University Press.

———— 2007. The Genesis of Grammar: A Reconstruction. Oxford: Oxford University Press.

Heine, Bernd & Miyashita, Hiroyuki. 2008. The intersection between reflexives and reciprocals: A grammaticalization perspective. In E. König & V. Gast (eds.), Reciprocals and Reflexives: Theoretical and Typological Explorations, pp. 169–223. Berlin/New York: Mouton de Gruyter.

Hellenthal, Anneke C. 2010. A Grammar of Sheko. Leiden University. [PhD]

Hellwig, Birgit. 2011. A Grammar of Goemai. Berlin/Boston: De Gruyter Mouton.

Hemmilä, Ritva & Luoma, Pirkko. 1987. Urim Grammar. [ms.]

Hernández-Green, Néstor. 2015. Morfosintaxis Verbal del Otomí de Acazulco. Mexico: CIESAS. [PhD]

Higuita, Jesús M. G. 2008. Una Gramática del Wǻnsöjöt. Amsterdam: Vrije Universiteit Amsterdam. [PhD]

Hilders, J. H. & Lawrance, J. C. D. 1956. An Introduction to the Ateso Language. Kampala: Eagle Press.

Hill, Jane H. 2005. A Grammar of Cupeño. Berkeley/Los Angeles/London: University of California Press.

Hock, Hans H. 2019. Anticausative and passive in Vedic: Which way reanalysis? In L. Heltoft, I. Igartua, B. D. Joseph, K. J. Kragh & L. Schøsler (eds.), Perspectives on Language Structure and Language Change, pp. 181–191. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Holton, Gary. 2000. The Phonology and Morphology of the Tanacross Athabaskan Language. Santa University of California. [PhD]

Honeyman, Thomas. 2016. A Grammar of Momu: A Language of Papua New Guinea. Australian National University. [PhD]

Hopper, Paul & Thompson, Sandra 1980. Transitivity in grammar and discourse. Language 56 (2), pp. 251–299.

———— 1982. Introduction. In P. Hopper & S. Thompson (eds.), Studies in Transitivity, pp. 1–5. Syntax and Semantics 15. New York: Academic Press.

Hualde, José I. & de Urbina, Jon O. (eds.). 2003. A Grammar of Basque. Berlin/New York: Mouton de Gruyter.

Huber, Juliette. 2011. A Grammar of Makalero: A Papuan Language of East Timor. Leiden University. [PhD]

Hyman, Larry M. 2007. Niger-Congoer verb extensions: Overview and Discussion. In D. L. Payne & J. Peña (eds.), Selected Proceedings of the 37th Annual Conference on African Linguistics, pp. 149–163. Somerville: Cascadilla Proceedings Project.

— I —

Ichihashi-Nakayama, Kumiko. 1996. The “applicative” in Hualapai: Its functions and meanings. Cognitive Linguistics 7 (2), pp. 227–239.

Ichihashi-Nakayama, Kumiko; Bender, Jorigine & Yamamoto, Akira Y. 1997. Transitivity and auxiliary alternation in Hualapai. Journal of the Linguistic Society of Japan 111, pp. 1–17.

Inglese, Guglielmo. 2017. A synchronic and diachronic typology of Hittite reciprocal constructions. Studies in Language 41 (4), pp. 956–1006.

———— 2019. The Hittite Middle Voice. University of Bergamo. [PhD]

Israeli, Alina. 1997. Semantics and Pragmatics of the “Reflexive” Verbs in Russian. Munich: Verlag Otto Sagner.

Ittmann, Johannes. 1939. Grammatik des Duala. Berlin.

— J —

Jacobsen, Wesley. 1982. Transitivity in the Japanese Verbal System. Bloomington: Indiana University Linguistics Club.

Janhunen, Juha. 1982. On the structure of Proto-Uralic. Finnisch-Ugrische Forschungen 44, pp. 23–42.

———— 2003a. The Mongolic Languages. London/New York: Routledge.

———— 2003b. Proto-Mongolic. In J. Janhunen (ed.), The Mongolic Languages, pp. 1–29. London/New York: Routledge.

———— 2012. Mongolian. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Janic, Katarzyna. 2010. On the reflexive-antipassive polysemy: Typological convergence from unrelated languages. Berkeley Linguistics Society 36, pp. 158–173.

———— 2016. Synchronic and diachronic aspects of valency-reducing devices in Oceanic languages. Lingua Posnaniensis 58 (2), pp. 151–188.

Jansen, Joana W. 2010. A Grammar of Yakima Ichishkíin/Sahaptin. University of Oregon. [PhD]

Jany, Carmen. 2009. Chimariko Grammar: Areal and Typological Perspective. Berkeley/Los Angeles/London: University of California Press.

Jara, Yolanda V. 2013. Predication in Rarómuri (Urique Tarahumara). University of Oregon. [PhD]

Jendraschek, Gerd. 2012. A Grammar of Iatmul. University of Regensburg. [Habit.]

Jensen, Cheryl. 1998. Comparative study: Tupí-Guaraní. In D. C. Derbyshire & G. K. Pullum (eds.), Handbook of Amazonian Languages, Vol. 4, pp. 489–618. Berlin/New York: Mouton de Gruyter.

Jerro, Kyle. 2017. The causative-instrumental syncretism. Journal of Linguistics 53 (4), pp. 1–38.

Johnston, Raymond L. 1978. Nakanai Syntax. Canberra: Australian National University. [PhD]

Joseph, U. V. 2007. Rabha. Leiden/Boston: Brill.

Joswig, Andreas. 2019. The Majang Language. Leiden University. [PhD]

Juárez, Cristian & González, Albert Á. 2017. The antipassive marking in Mocoví. In A. Á. González & I. Navarro (eds.), Verb Valency Changes: Theoretical and Typological Perspectives, pp. 227–255. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Jukes, Anthony. 2006. Makassarese (basa Mangkasara'): A Description of An Austronesian Language of South Sulawesi. University of Melbourne. [PhD]

———— 2013. Voice, Valence, and Focus in Makassarese. In A. Adelaar (ed.), Voice Variation in Austronesian Languages of Indonesia, pp. 67–84. NUSA 54.

Julian, Charles. 2010. A History of Iroquoian Languages. University of Manitoba. [PhD]

Jung, Ingrid. 2008. Gramática del Páez o Nasa Yuwe: Descripción de una Lengua Indígena de Colombia. Munich: Lincom.

— K —

Kakumasu, James. 1986. Urubu-Kaapor. In D. C. Derbyshire & G. K. Pullum (eds.), Handbook of Amazonian Languages, Vol. 1, pp. 326–403. Berlin/New York: Mouton de Gruyter.

Kamil, Mohamed H. 2015. L'afar: description grammaticale d'une langue couchitique (Djibouti, Erythrée et Ethiopie). Université Sorbonne Paris Cité. [PhD]

Kanchoua, Laré. 2005. Description de la langue moba: Approche synchronique. University of Lomé. [PhD]

Kanu, Sullay M. 2012. Valence-Increasing Morphology in Temne. University of Alberta. [PhD]

Károly, Sándor. 1982. Intransitive-transitive derivational suffixes in Hungarian. In F. Kiefer (ed.), Hungarian General Linguistics, pp. 185–243. Linguistic & Literary Studies in Eastern Europe 4. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Kari, Ethelbert E. 2004. A Reference Grammar of Degema. Cologne: Rüdiger Köppe Verlag.

Kász, Csilla. 2013. Modern Standard Arabic Valency Patterns. In I. Hartmann & M. Haspelmath (eds.), Valency Patterns Leipzig. Leipzig: Max Planck Institute for Evolutionary Anthropology.
→ Available online: http://valpal.info/languages/arabic/examples/38

Kawachi, Kazuhiro. 2007. A Grammar of Sidaama (Sidamo), a Cushitic Language of Ethiopia. State University of New York. [PhD]

Kazenin, Konstantin I. 1994. On the lexical distribution of agent-preserving and object-preserving transitivity alternations. Nordic Journal of Linguistics 17 (2), pp. 141–154.

———— 2001a. The passive voice. In M. Haspelmath, E. König, W. Oesterreicher & W. Raible (eds.), Language Typology and Language Universals: An International Handbook, Vol. 2, pp. 899–916. Berlin/New York: Walter de Gruyter.

———— 2001b. Verbal reflexives and the middle voice. In M. Haspelmath, E. König, W. Oesterreicher & W. Raible (eds.), Language Typology and Language Universals: An International Handbook, Vol. 2, pp. 916–928. Berlin/New York: Walter de Gruyter.

Kebebew, Lemmi G. 2018. Grammatical Description and Documentation of Bayso. Addis Ababa University. [PhD]

———— 1993. The Middle Voice. Typological Studies in Language 23. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 1994. Middle voice, transitivity, and the elaboration of events. In B. Fox & P. Hopper (eds.), Voice: Form and Function, pp. 179–230. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Khachaturyan, Maria. Grammaire de la langue mano (mandé-sud) dans une perspective typologique. Paris: INALCO. [PhD]

Khatiwada, Karnakhar. 2016. Dhimal Morphosyntax. Tribhuvan University. [PhD]

Khrishnamurti, Bh. & Gwyn, J. P. L. 1985. A Grammar of Modern Telugu. Bombay/Calcutta/Madras: Oxford University Press.

Kibebe, Tsehay Taye. 2015. Documentation and Grammatical Description of Chabu. Addis Abeba University. [PhD]

Killian, Don. 2015. Topics in Uduk Phonology and Morphosyntax. University of Helsinki. [PhD]

Kim, Yuni. 2008. Topics in the Phonology and Morphology of San Francisco del Mar Huave. University of California. [PhD]

King, Gareth. 2003. Modern Welsh: A Comprehensive Grammar. London/New York: Routledge.

King, John T. 2009. A Grammar of Dhimal. Leiden/Boston: Bril.

Kioko, Angelina Nd. 2005. Theoretical issues in the grammar of Kikamba, a Bantu language. Munich: Lincom.

Kirillova, Ljudmila E. 2008. Udmurtsko-russkij slovar'. Iževsk.

Kittilä, Seppo. 2002. Transitivity: Towards a Comprehensive Typology. Yleisen kielitieteen julkaisuja 5. Turku: Åbo Akademis tryckeri.

———— 2010. Transitivity typology. In J. J. Song (ed.), The Oxford Handbook of Linguistic Typology, pp. 346–367. Oxford: Oxford University Press.

———— 2015. Valence change: General and Zapotec perspectives. In N. Operstein & A. H. Sonnenschein (eds.), Valence Changes in Zapotec: Synchrony, Diachrony, Typology, pp. 345-380. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Klaiman, M. H. 1982. Affectiveness and the voice system of Japanese: Satisfaction guaranteed or your money back. Proceedings of the Eighth Annual Meeting of the Berkeley Linguistics Society, pp. 398–413.

———— 1991. Grammatical Voice. Cambridge: Cambridge University Press.

Klamer, Marian. 2010. A Grammar of Teiwa. Berlin/New York: De Gruyter Mouton.

Knjazev, Jurij. 1998. Towards a typology of grammatical polysemy: Reflexive markers as markers of reciprocity. In L. Kulikov & H. Vater (eds.), Typology of Verbal Categories: Papers Presented to Vladimir Nedjalkov on the Occasion of his 70th Birthday, pp. 185–194. Tübingen: Max Niemeyer Verlag.

———— 2007. Reciprocal constructions in Russian. In V. P. Nedjalkov (eds.), Reciprocal Constructions, pp. 673–707. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Knott, Judith. 1995. The causative-passive correlation. In D. C. Bennett, T. Bynon & B. G. Hewitt (eds.), Subject, Voice and Ergativity, pp. 53–59. London: School of Oriental and African Studies, University of London.

Kroon, Yosep B. 2016. A Grammar of Solor – Lamaholot: A Language of Flores, Eastern Indonesia. University of Adelaide. [PhD]

Kruspe, Nicole. 2004. A Grammar of Semelai. Cambridge: Cambridge University Press.

Krüger, Karl W. 1846. Griechische Sprachlehre für Schulen. Berlin: K. W. Krüger.

Kulikov, Leonid. 1993. The “second causative”: a typological sketch. In B. Comrie & M. Polinsky (eds.), Causatives and Transitivity, pp. 121–154. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2000. Vedic causative nasal presents and their thematicization: A functional approach. In J. C. Smith & D. Bentley (eds.), Historical Linguistics 1995, Vol. 1: General Issues and Non-Germanic Languages, pp. 191–209. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2001. Causatives. In M. Haspelmath, E. König, W. Oesterreicher & W. Raible (eds.), Language Typology and Language Universals: An International Handbook, Vol. 2, pp. 886–898.

———— 2007. Reciprocal constructions in Vedic. V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 2, pp. 709–738. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2008. Voice and valency derivations in Old Indo-Aryan in a diachronic typological perspective: The degrammaticalization of the middle and other trends in the Vedic verbal system. In L. Melazzo (ed.), Usare il presente per spiegare il passato: Teorie linguistiche contemporanee e lingue storiche, pp. 161–191. Atti del XXXIII Convegno della Società Italiana di Glottologia (Palermo, October 16th-18th, 2008).

———— 2009. Valency-changing categories in Indo-Aryan and Indo-European: A diachronic typological portrait of Vedic Sanskrit. In A. Saxena & Å. Viberg (eds.), Multilingualism: Proceedings of the 23rd Scandinavian Conference of Linguistics, pp. 75-92.

———— 2010. Voice typology. In J. J. Song (ed.), The Oxford Handbook of Linguistic Typology, pp. 368–398. Oxford: Oxford University Press.

———— 2011a. The Vedic root variants of the type CaC // C(C)ā: Morphophonological features and syntactic patterns. In T. Krisch & T. Lindner (eds.), Indogermanistik und Linguistik im Dialog: Akten der XIII. Fachtagung der Indogermanischen Gesellschaft vom 21. bis 27. September 2008 in Salzburg, pp. 310–320. Wiesbaden: Reichert Verlag.

———— 2011b. Passive to anticausative through impersonalization: The case of Vedic and Indo-European. In A. Malchukov & A. Siewierska (eds.), Impersonal Constructions: A Cross-Linguistic Perspective, pp. 229–254. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2013. Middle and reflexive. In S. Luraghi & C. Parodi (eds.), The Bloomsbury Companion to Syntax, pp. 261–280. London/New Delhi/New York/Sydney: Bloomsbury.

———— 2017. The syntax of Indic. In J. Klein, B. Joseph & M. Fritz (eds.), Handbook of Comparative and Historical Indo-European Linguistics, Vol. 1, pp. 377–409. Berlin/Boston: De Gruyter Mouton.

Kulikov, Leonid & Lavidas, Nikolaos. 2017. Between passive and middle: Evidence from Greek and beyond. In L. Hellan, A. Malchukov & M. Cennamo (eds.), Contrastive Studies in Verbal Valency, pp. 297–325. Linguistics Today 237. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Kulikov, Leonid & Nedjalkov, Vladimir P. 1992. Questionnaire zur Kausativierung. Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung 45 (2), pp. 137–149.

Kumar, Pramod. 2012. Descriptive and Typological Study of Jarawa. Jawaharlal Nehru University. [PhD]

Kurebito, Tokusu. 2012. An Outline of Valency-Reducing Operations in Chukchi. Senri Ethnological Studies 77, pp. 177–189.

Kuryłowicz, Jerzy. 1964. The Inflectional Categories of Indo-European. Heidelberg: Carl Winter.

Kuular, Klara B. 2007. Reciprocals, sociatives, comitatives, and assistives in Tuvan. V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 3, pp. 1163–1229. Amsterdam/Philadelphia: John Benjamins Publishing Company.

— L —

Lachler, Jordan. 2006. A Grammar of Laguna Keres. University of New Mexico. [PhD]

Lacroix, René. 2009. Description du dialecte laze d'Arhavi (caucasique du sud, Turquie). Lyon: Université Lumière Lyon 2. [PhD]

———————— 2012. Laz middle voice. In G. Authier & K. Haude (eds.), Ergativity, Valency and Voice, pp. 165–197. Empirical Approaches to Language Typology. Berlin/Boston: De Gruyter Mouton.

Langacker, Ronald W. & Munro, Pamela. 1975. Passives and Their Meaning. Language 51 (4), pp. 789–830.

LaPolla, Randy J.; Kratochvíl, František & Coupe, Alexander R. 2011. Introduction: On transitivity. Studies in Language 35 (3), pp. 469–491.

Larochette, J. 1958. Grammaire des dialects Mangbetu et medje suivie d'un manuel de conversation et d'un lexique. Tervuren.

Lazard, Gilbert. 2002. Transitivity revisited as an example of a more strict approach in typological research. Folia Linguistica 36 (3-4), pp. 141–190.

Lee, Jennifer. 1987. Tiwi Today: A Study of Language Change in a Contact Situation. Canberra: Pacific Linguistics.

Lehmann, Christian. 2015. Valency classes in Yucatec Maya. In A. Malchukov & B. Comrie (eds.), Valency Classes in the World's Languages, Vol. 2: Case Studies from Austronesia, the Pacific, the Americas, and Theoretical Outlook, pp. 1407–1461. Berlin: Mouton de Gruyter.

Letuchiy, Alexander. 2007. Reciprocals, reflexives, comitatives, and sociatives in Adyghe. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 2, pp. 773–811. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Levy, Catherine. 2002. A Tentative Description of Awar Phonology and Morphology (Lower Ramu Family, Papua New Guinea). Free University of Brussels. [PhD]

Li, Xuping. 2018. A Grammar of Gan Chinese: The Yichun Language. Berlin/Boston: De Gruyter Mouton.

Lichtenberk, Frantisek. 1985. Multiple uses of reciprocal constructions. Australian Journal of Linguistics 5 (1), pp. 19–41.

———— 1991. Reciprocals and depatientives in To'aba'ita. In R. Blust (ed.), Currents in Pacific Linguistics: Papers on Austronesian Languages and Ethnolinguistics in Honour of George W. Grace, pp. 171-183. Canberra: Australian National University.

———— 2000. Reciprocal without reflexives. In Z. Frajzyngier & T. Curl (eds.), Reciprocals: Forms and Functions, pp. 31–62. Typological Studies in Language 41. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2007. Reciprocals and related meanings in To'aba'ita. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 4, pp. 1547-1571. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Lidz, Liberty A. 2010. A Descriptive Grammar of Yongning Na (Mosuo). University of Texas. [PhD]

Linn, Mary S. 2000. A Grammar of Euchee (Yuchi). University of Kansas. [PhD]

Llanes, Manuel P.; González, Albert Á. & Estrada-Fernández, Zarina. 2017. Transitivity and valency-changing operations in Huasteca Nahuatl. In A. Á. González & I. Navarro (eds.), Verb Valency Changes: Theoretical and Typological Perspectives, pp. 82–105. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Lock, Arnold H. 2011. Abau Grammar. Ukarumpa: Summer Institute of Linguistics.

Lojenga, Constance K. 1994. Ngiti: A Central-Sudanic Language of Zaire. Cologne: Rüdiger Köppe Verlag.

Loughnane, Robyn. A Grammar of Oksapmin. University of Melbourne. [PhD]

Louwerse, John. 1988. The Morphosyntax of Una in Relation to Discourse Structure: A Descriptive Analysis. Canberra: Pacific Linguistics.

Lovestrand, Joseph. 2012. The Linguistic Structure of Baraïn (Chadic). Dallas: Graduate Institute of Applied Linguistics. [MA]

Luraghi, Silvia. Transitivity, intransitivity and diathesis in Hittite. Indo-European Linguistics and Classical Philology 16 (2), pp. 133–154.

———— 2012. Basic valency orientation and the middle voice in Hittite. Studies in Language 36 (1), pp. 1–32.

Lyons, John. 1968/1969. Introduction to Theoretical Linguistics. Cambridge: Cambridge University Press.

— M —

Macaulay, Monica. 1996. A Grammar of Chalcatongo Mixtec. Berkeley/Los Angeles/London: University of California Press.

Majid, Asifa; Evans, Nicholas; Gaby, Alice & Levinson, Stephen C. 2011. The semantics of reciprocal constructions across languages: An extensional approach. In N. Evans, A. Gaby, S. C. Levinson & A. Majid (eds.), Reciprocals and Semantic Typology, pp. 29–59. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Malchukov, Andrej. 2015. Valency classes and alternations: parameters of variation. In A. Malchukov & B. Comrie (eds.), Valency Classes in the World's Languages, Vol. 1.1: Introducing the Framework, and Case Studies from Africa and Eurasia, pp. 73–130. Berlin/Boston: De Gruyter Mouton.

———— 2016. "Ambivalent voice": markedness effects in valency change. In T. Kageyama & W. M. Jacobsen (eds.), Transitivity and Valency Alternations, pp. 389–422. Trends in Linguistics Studies and Monographs 297. Berlin/Boston: De Gruyter Mouton.

———— 2017. Markedness effects in applicative formation. In A. Á. González & I. Navarro (eds.), Verb Valency Changes: Theoretical and Typological Perspectives, pp. 3–29. Typological Studies in Language 120. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Malchukov, Andrej & Comrie, Bernard (eds.). 2015a. Valency Classes in the World's Languages, Vol. 1.1: Introducing the Framework, and Case Studies from Africa and Eurasia. Berlin/Boston: De Gruyter Mouton.

————— 2015b. Valency Classes in the World's Languages, Vol. 1.2: Case Studies from Austronesia and the Pacific, the Americas, and Theoretical Outlook. Berlin/Boston: De Gruyter Mouton.

Malchukov, Andrej; Comrie, Bernard; Haspelmath, Martin; Hartmann, Iren & Wichmann, Søren. 2015. Leipzig Questionnaire on valency classes. In A. Malchukov & B. Comrie (eds.), Valency Classes in the World's Languages, Vol. 1.1: Introducing the Framework, and Case Studies from Africa and Eurasia, pp. 27–39. Berlin/Boston: De Gruyter Mouton.

Malchukov, Andrej; Haspelmath, Martin & Comrie, Bernard. (eds.) 2010. Studies in Ditransitive Constructions: A Comparative Handbook. Berlin/New York: De Gruyter Mouton.

Malchukov, Andrej & Nedjalkov, Igor V. 2015. Valency classes in Even (North Tungusic) in a comparative Tungusic perspective. In A. Malchukov & B. Comrie (eds.), Valency Classes in the World's Languages, Vol. 1.1: Introducing the Framework, and Case Studies from Africa and Eurasia, pp. 571–627. Berlin/Boston: De Gruyter Mouton.

Martin, Jack B. 2011. A Grammar of Creek (Muskogee). Lincoln/London: University of Nebraska Press.

Maslova, Elena. 2000. Reciprocals and set construal. In Z. Frajzyngier & T. S. Curl (eds.), Reciprocals: Forms and Functions, pp. 161–178. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2003. A Grammar of Kolyma Yukaghir. Berlin/New York: Mouton de Gruyter.

———— 2007. Reciprocal and polyadic (Remarkable reciprocals in Bantu). In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 1, pp. 335–352. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2008. Reflexive encoding of reciprocity: Cross-linguistic and language-internal variation. In E. König & V. Gast (eds.), Reciprocal and Reflexives: Theoretical and Typological Explorations, pp. 225–257. Berlin/New York: Mouton de Gruyter.

Maslova, Elena & Nedjalkov, Vladimir P. 2005. Reciprocal constructions. In M. Haspelmath, M. S. Dryer, D. Gil & B. Comrie (eds.), The World Atlas of Language Structures, pp. 430–433. Oxford: Oxford University Press.

Matthews, P. H. 1981. Syntax. Cambridge: Cambridge University Press.

McFarland, Teresa A. 2009. The Phonology and Morphology of Filomeno Mata Totonac. University of California. [PhD]

McGill, Stuart J. 2009. Gender and Person Agreement in Cicipu Discourse. London: School of Oriental and African Studies (University of London). [PhD]

McGregor, William B. 2013. Grammaticalisation of verbs into temporal and modal markers in Australian languages. In F. Josephson & I. Söhrman (eds.), Diachronic and Typological Perspectives on Verbs, pp. 107–132. Amsterdam/Philadelphia: John Benjamins Publishing Company.

McKay, Graham. 1975. Rembarnga: A Language of Central Arnhem Land. Australian National Universtiy. [PhD]

Meeussen, Achille E. 1967. Bantu grammatical reconstructions. Africana Linguistica 3, pp. 79–121.

Mel'čuk, Igor. 1993. The inflectional category of voice: towards a more rigorous definition. In B. Comrie & M. Polinsky (eds.), Causatives and Transitivity, pp. 1–46. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Meakins, Felicity & Nordlinger, Rachel. 2014. A Grammar of Bilinarra: An Australian Aboriginal Language of the Northern Territory. Canberra: Pacific Linguistics.

Meira, Sérgio. 2000. The accidental intransitive split in the Cariban family. In S. Gildea (ed.), Reconstructing Grammar: Comparative Linguistics and Grammaticalization, pp. 201–230. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Meira, Sérgio; Gildea, Spike & Hoff, B. J. 2010. On the origin of ablaut in the Cariban family. International Journal of American Linguistics 76 (4), pp. 477–515.

Mekonnen, Hundie K. 2015. The Grammar of Girirra: A Lowland East Cushitic Language of Ethiopia. Addis Ababa University. [PhD]

Meng, Chenxi. 2018. A Grammar of Tulil. La Trobe University. [PhD]

Merlan, Francesca C. 1983. Ngalakan Grammar, Texts and Vocabulary. Canberra: Pacific Linguistics.

———— 1989. Mangarayi. London/New York: Routledge.

———— 1994. A Grammar of Wardaman: A Language of the Northern Territory of Australia. Berlin/New York: Mouton de Gruyter.

Miestamo, Matti. 2003. Clausal Negation: A Typological Study. Helsinki University. [PhD]

———— 2005. Standard Negation: The Negation of Declarative Verbal Main Clauses in a Typological Perspective. Berlin: Mouton de Gruyter.

Miestamo, Matti; Bakker, Dik & Arppe, Antti. 2016. Sampling for variety. Linguistic Typology 20 (2), pp. 233–296.

Miller, Amy. 2001. A Grammar of Jamul Tiipay. Berlin/New York: Mouton de Gruyter.

Miller, D. Gary. 1993. Complex Verb Formation. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Mithun, Marianne. 2000. Valency-Changing Derivation in Central Alaskan Yup'ik. In R. M. W. Dixon & A. Y. Aikhenvald (eds.), Changing Valency: Case Studies in Transitivity, pp. 84–114. Cambridge: Cambridge University Press.

Miyaoka, Osahito. 2012. A Grammar of Central Alaskan Yupik (CAY). Berlin/Boston. De Gruyter Mouton.

Montgomery-Anderson, Brad. 2008. A Reference Grammar of Oklahoma Cherokee. University of Kansas. [PhD]

Morgan, Lawrence. 1991. A Description of the Kutenai Language. University of California. [PhD]

Mosel, Ulrike. 1984. Tolai Syntax and Its Historical Development. Canberra: Pacific Linguistics.

———— 1991. Towards a typology of valency. In H. Seiler & W. Premper (eds.), Partizipation: Das sprachliche Erfassen von Sachverhalten, pp. 240-251. Tübingen: Gunter Narr Verlag.

Moser, Rosmarie. 2004. Kabba: A Nilo-Saharan Language of the Central African Republic. Munich: Lincom.

Mourigh, Khalid. 2015. A Grammar of Ghomara Berber. Leiden University. [PhD]

Moyse-Faurie, Claire. 2007. Reciprocal, sociative, middle, and iterative constructions in East Futunan. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 3, pp. 1511-1543. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2008. Constructions expressing middle, reflexive and reciprocal situations in some Oceanic languages. In E. König & V. Gast (eds.), Reciprocals and Reflexives: Theoretical and Typological Explorations, pp. 105–168. Berlin/New York: Mouton de Gruyter.

———— 2013. Xârâcùù Valency Patterns. In I. Hartmann & M. Haspelmath (eds.), Valency Patterns Leipzig. Leipzig: Max Planck Institute for Evolutionary Anthropology.

⟶ Available online: http://valpal.info/languages/xaracuu/examples/79

———— 2017. Reflexive markers in Oceanic languages. Studia Linguistica 71 (1-2), pp. 107–135.

Mugane, John. 1999. The recalcitrant nature of the Bantu verbal morpheme -an-. Linguistic Analysis 29, pp. 160–181.

Mushin, Ilana. 2012. A Grammar of (Western) Garrwa. Boston/Berlin: De Gruyter Mouton.

— N —

Nagaraja, K. S. 2014. The Nihali Language (Grammar, Texts and Vocabulary). Manasagangotri: Central Institute of Indian Languages.

Navarro, Ía. 2017. The semantics of Nahuatl tla- constructions. In A. Á. González & I. Navarro (eds.), Verb Valency Changes: Theoretical and Typological Perspectives, pp. 108–132. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Ndayiragije, Juvénal. 2006. The ergativity parameter: A view from antipassive. In A. Johns, D. Masasam & J. Ndayiragije (eds.), Ergativity, pp. 271–292. Dordrecht: Springer.

Nedyalkov, Igor V. 1991. Recessive-accessive polysemy of verbal suffixes. Languages of the World 1, pp. 4–32.

————— 1993. Causative-passive polysemy of the Manchu-Tungusic -bu/-v(u). Linguistica Antverpiensa 27, pp. 193–202.

Nedjalkov, Vladimir P. 1964. O svjazi kauzativnosti i passivnosti. In J. M. Skrevnev (ed.), Voprosy obščego i romano-germanskogo jazykoznanija, pp. 301–310. Ufa: Baškirskoe knižnoe izdatel'stvo.

———— 1988. Preface. In V. P. Nedjalkov (ed.), Typology of Resultative Constructions, pp. xi–xiii. Typological Studies in Language 12. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2006. Chukchi reciprocals (with an appendix on Koryak and Itelmen). In T. Tsunoda & T. Kageyama (eds.), Voice and Grammatical Relations, pp. 217–246. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— (ed.). 2007a. Reciprocal Constructions, Vols. 1–5. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2007b. Overview of the research. Definitions of terms, framework, and related issues. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 1, pp. 3-114. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2007d. Polysemy of reciprocal markers. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 1, pp. 231–333. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2007e. Reciprocals, assistives, and plural in Kirghiz. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 3, pp. 1231–1279. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Nedjalkov, Vladimir P. & Nedjalkov, Igor V. 2007. Reciprocals, sociatives, comitatives, and assistives in Yakut. In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 3, pp. 1095–1161. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Nedjalkov, Vladimir P.; Otaina, Galina A. & Xolodovič, Aleksandr A. 1995. Morphological and lexical causatives in Nivkh. In D. C. Bennett, T. Bynon & B. G. Hewitt (eds.), Subject, Voice and Ergativity: Selected Essays, pp. 60–81. London: School of Oriental and African Studies (University of London).

Nedjalkov, Vladimir P. & Otaina, Galina A. 2013. A Syntax of the Nivkh Lanugage: The Amur Dialect. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Nedjalkov, Vladimir P. & Sil'nickij, Georgij. G. 1969. Tipologija kauzativnyx konstrukcij. In A. A. Xolodovič (ed.), Tipologija kauzativnyx konstrukcij: Morfologičeskij kauzativ, pp. 5–19. Leningrad: Nauka.

Newmeyer, Frederick J. 2010. On comparative concepts and descriptive categories: A reply to Haspelmath. Language 86 (3), pp. 688–695.

Nichols, Johanna. 2008. Why are stative-active languages rare in Eurasia? A typological perspective on split-subject marking. In M. Donohue & S. Wichmann (eds.), The Typology of Semantic Alignment, pp. 121–140.

———— 2011. Ingush Grammar. Berkeley/Los Angeles/London: University of California Press.

Nicolás, Oscar L. 2016. Estudios de la fonología y gramática del zapoteco de Zoochina. Mexico: CIESAS. [PhD]

Nikolaeva, Irina. 2014. A Grammar of Tundra Nenets. Berlin/Boston: De Gruyter Mouton.

Nonno, Tresi. 2015. History of Ainu causatives. CAES 1 (3), pp. 14–18.

Næss, Åshild. 2007. Prototypical Transitivity. Typological Studies in Language 72. Amsterdam/Philadelphia: John Benjamins Publishing Company.

— O —

O'Brien, Colleen A. 2018. A Grammatical Description of Kamsá, a Language Isolate of Colombia. University of Hawai'i at Mānoa. [PhD]

Okrand, Marc. 1977. Mutsun Grammar. University of California. [PhD]

Olawsky, Knut J. 2006. A Grammar of Urarina. Berlin/New York: Mouton de Gruyter.

Olsson, Bruno. 2017. The Coastal Marind Language. Nanyang Technological University. [PhD]

Öner, Mustafa. 2007. Tatar Türkçesi. In A. B. Ercilasun (ed.), Türk Lehçeleri Grameri, pp. 679–748. Ankara: Akçağ Yayınları.

————— 2009. Kazan-Tatar Türkçesi sözlüğü, Ankara: Türk Dili Kurumu Yayınları.

Onishi, Masayuki. 1994. A Grammar of Motuna (Bougainville, Papua New Guinea). Australian National University. [PhD]

Orkaydo, Ongaye O. 2013. A Grammar of Konso. Leiden University. [PhD]

Otaina, Galina A. & Nedjalkov, Vladimir P. 2007. Reciprocal constructions in Nivkh (Gilyak). In V. P. Nedjalkov (ed.), Reciprocal Constructions, Vol. 4, pp. 1715–1747. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Ottosson, Kjartan. 2008. The Old Norse Middle Voice in the pre-literary period: Questions of grammaticalisation and cliticization. In F. Josephson & I. Söhrmann (eds.), Interdependence of Diachronic and Synchronic Analyses, pp. 185-219. Studies in Language Companion Series 103. Amsterdam/Philadelphia: John Benjamins Publishing Company.

— P —

Paiyu, Zhang. 2013. The Kilen Language of Manchuria: Grammar of a Moribund Tungusic Language. University of Hong Kong. [PhD]

Patz, Elisabeth. 1982. A Grammar of the Kuku Yalanji Language of North Queensland. Australian National University. [PhD]

Pawley, Andrew. 1973. Some problems in Proto-Oceanic grammar. Oceanic Linguistics 12 (1-2), pp. 103–188.

Payne, Doris L. 1985a. Degrees of Inherent Transitivity in Yagua Verbs. International Journal of American Linguistics 51 (1), pp. 19–37.

———— 1985b. Aspects of the Grammar of Yagua: A Typological Perspective. University of California. [PhD]

———— 2002. Causatives in Asheninka: The case for a sociative source. In M. Shibatani (ed.), The Grammar of Causation and Interpersonal Manipulation, pp. 485–505. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Pederson, Eric. 1991. Subtle Semantics: Universals in the Polysemy of Reflexive and Causative Constructions. University of California. [PhD]

Peña, Jaime G. 2015. A Grammar of Wampis. University of Oregon. [PhD]

Pensalfini, Rob. 2003. A Grammar of Jingulu, an Aboriginal Language of the Northern Territory. Canberra: Pacific Linguistics.

Peterson, David A. 2007. Applicative Constructions. Oxford: Oxford University Press.

Petrollino, Sara. 2016. A Grammar of Hamar, a South Omotic Language of Ethiopia. Leiden University. [PhD]

Pharris, Nicholas J. 2006. Winuunsi Tm Talapaas: A Grammar of the Molalla Language. University of Michigan. [PhD]

Plaisier, Heleen. 2007. A Grammar of Lepcha. Leiden University. [PhD]

Plungian, Vladimir A. 1993. Three causatives in Dogon and the overlapping of causative and passive markers. In B. Comrie & M. Polinsky (eds.), Causatives and Transitivity, pp. 391–396. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Polinsky, Maria. 2017. Antipassive. In J. Coon, D. Massam & L. D. Travis (eds.), The Oxford Handbook of Ergativity, pp. 308–331. Oxford: Oxford University Press.

Post, Mark W. 2007. A Grammar of Galo. La Trobe University. [PhD]

— Q —

Queixalós, Francesc. 2002. The notion of transfer in Sikuani causatives. In M. Shibatani (ed.), The Grammar of Causation and Interpersonal Manipulation, pp. 319–339. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Quesada, J. Diego. 2000. A Grammar of Teribe. Munich: Lincom.

— R —

Reesink, Ger P. A Grammar of Hatam: Bird’s Head Peninsula, Irian Jaya. Canberra: Pacific Linguistics.

Reid, Nicholas J. 1990. Ngan’gityemerri: A Language of the Daly River Region, Northern Territory of Australia. Australian National University. [PhD]

Rickheit, Gert & Sichelschmidt, Lorenz. 2007. Valency and cognition – a notion in translation. In T. Herbst & K. Götz-Votteler (eds.), Valency: Theoretical, Descriptive and Cognitive Issues, pp. 163–182. Berlin/New York: Mouton de Gruyter.

Rijkhoff, Jan; Bakker, Dik; Hengeveld, Kees & Kahrel, Peter. 1993. A method of language sampling. Studies in Language 17 (1), pp. 169–203.

Rijkhoff, Jan & Bakker, Dik. 1998. Language sampling. Linguistic Typology 2, pp. 263–314.

Robbeets, Martine. 2007. The causative-passive in the Trans-Eurasian languages. Turkic Languages 11, pp. 158–201.

———— 2015. Diachrony of Verb Morphology. Trends in Linguistics Studies and Monographs 291. Berlin/Boston: De Gruyter Mouton.

Robinson, Laura C. 2011. Dupaningan Agta: Grammar, Vocabulary, and Texts. University of Hawai‘i at Mānoa. [PhD]

Robinson, Stuart P. 2011. Split Intransitivity in Rotokas, a Papuan Language of Bougainville. Radboud University. [PhD]

Rombandeeva, E. I. Mansijskij (vogul’skij) jazyk. Moscow: Nauka.

Romero-Méndez, Rodrigo. 2008. A Reference Grammar of Ayutla Mixe (Tukyo’m Ayuujk). State University of New York. [PhD]

Rose, Françoise. 2003. Morphosyntaxe de l’émérillon: Une langue tupi-guarani de Guyana française. Lyon: Université Lumière Lyon 2. [PhD]

Roset, Caroline J. 2018. A Grammar of Darfur Arabic. University of Amsterdam. [PhD]

Round, Erich R. 2013. Kayardild Morphology and Syntax. Oxford: Oxford University Press.

— S —

Sakayan, Dora. 2007. Eastern Armenian: For the English-Speaking World: A Contrastive Approach. Yerevan: Yerevan State University Press.

Sakel, Jeanette. 2004. A Grammar of Mosetén. Berlin/New York: Mouton de Gruyter.

Salo, Merja. 2013. Deverbal reflexive and passive in Chuvash. Journal de la société finno-ougrienne 94, pp. 223-255.

San Roque, Lila. 2008. An Introduction to Duna Grammar. Australian National University. [PhD]

Sansò, Andrea. 2017. Where do antipassive constructions come from? A study in diachronic typology. Diachronica 34 (2), pp. 175–218.

———— 2018. Explaining the diversity of antipassives: Formal grammar vs. (diachronic) typology. Language and Linguistics Compass 12 (6).

Sapir, Edward. 1930. Southern Paiute, a Shoshonean Language. Proceedings of the American Academy of Arts and Sciences 65 (1), pp. 1–296.

Sarvasy, Hannah S. 2014. A Grammar of Nungon: a Papuan Language of the Morobe Province, Papua New Guinea. James Cook University. [PhD]

Saunders, Ross & Davis, Philip W. 1982. The Control System of Bella Coola. International Journal of Linguistics 48 (1), pp. 1–15.

Savà, Graziano. 2005. A Grammar of Ts'amakko. Leiden University. [PhD]

Sawaki, Yusuf W. 2016. A Grammar of Wooi: An Austronesian Language of Yapen Island, Western New Guinea. Australian National University. [PhD]

Schadeberg, Thilo C. 2003. Derivation. In D. Nurse & G. Philippsson (eds.), The Bantu Languages, pp. 71–89. London/New York: Routledge.

Schaub, Willi. 1985. Babungo. London: Croom Helm.

Schikowski, Robert. 2009. The West Greenlandic Antipassives. [ms.]

Schlie, Ginny. 1983. Individuation and topicality as indices of transitivity: Degrees of passive in Kara. Ukarumpa: Summer Institute of Linguistics.

Schmalz, Mark. 2013. Aspects of the Grammar of Tundra Yukaghir. University of Amsterdam. [PhD]

Schmidt, Bodil K. 2003. West Greenlandic Antipassive. Nordlyd 31 (2), pp. 385–399.

Schneider-Blum, Gertrud. 2007. A Grammar of Alaaba. Cologne: Rüdiger Köppe Verlag.

Schrock, Terrill B. 2014. A Grammar of Ik (Icé-tód): Northeast Uganda's Last Thriving Kuliak Language. Leiden University. [PhD]

Seifart, Frank. 2015. Valency classes in Bora. In A. Malchukov & B. Comrie (eds.), Valency Classes in the World's Languages, Vol. 1.2: Case Studies from Austronesia and the Pacific, the Americas, and Theoretical Outlook, pp. 1481–1482. Berlin/Boston: De Gruyter Mouton.

Selezilo, Apollinaire. 2008. Description systématique du Ngbaka manza de Bogangolo en République centrafricaine. Université de Yaoundé I. [PhD]

Shibatani, Masayoshi. 1985. Passives and related constructions: A prototype analysis. Language 61 (4), pp. 821–848.

———— 2002. The Grammar of Causation and Interpersonal Manipulation. Amsterdam/Philadelphia: John Benjamins Publishing Company.

———— 2004. Voice. In G. Booij, C. Lehmann, J. Mugdan & S. Skopeteas (eds.), Morphology: An International Handbook on Inflection and Word-Formation, Vol. 2, pp. 1145–1165. Berlin/New York: Walter de Gruyter.

Shibatani, Masayoshi & Pardeshi, Prashant. 2001. The Causative Continuum. Kobe Papers in Linguistics 3, pp. 136–177.

———— 2002. The causative continuum. In M. Shibatani (ed.), The Grammar of Causation and Interpersonal Manipulation, pp. 85–126. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Shimelman, Aviva. 2017. A Grammar of Yauyos Quechua. Berlin: Language Science Press.

Shimoji, Michinori. 2008. A Grammar of Irabu, a Southern Ryukyuan Language. Australian National University. [PhD]

Sibamo, Tadesse G. 2015. Documentation and Description of Hadiyya: A Highland East Cushitic Language of Ethiopia. Addis Ababa University. [PhD]

Siegl, Florian. 2013. Materials on Forest Enets, an Indigenous Language of Northern Siberia. Helsinki: Société Finno-Ougrienne.

Siewierska, Anna. 1984. The Passive: A Comparative Linguistic Analysis. London/Sydney/Dover: Croom Helm.

Siewierska, Anna & Bakker, Dik. 2012. Passive agents: prototypical vs. canonical passives. In D. Brown, M. Chumakina & G. Corbett (eds.), Canonical Morphology and Syntax, pp. 151–189. Oxford: Oxford University Press.

Slater, Keith W. 2003. A Grammar of Mangghuer: A Mongolic Language of China's Qinghai Gansu Sprachbund. London/New York: Routledge.

Smeets, Ineke. 2008. A Grammar of Mapuche. Berlin/New York: Mouton de Gruyter.

Smits, Helena J. 2017. A Grammar of Lumun, a Kordofanian Language of Sudan. Leiden University. [PhD]

Somers, Harold. 1984. On the validity of the complement-adjunct distinction in valency grammar. Linguistics 22, pp. 507–530.

Sohn, Ho-Min. 1999. The Korean Language. Cambridge: Cambridge University Press.

Sohn, Joong-Sun. 1995. The reflexive suffix -v in Hualapai. In M. Goodell & D.-I. Choi (eds.), Kansas Working Papers in Linguistics 20, pp. 149–163. Lawrence: University of Kansas.

Song, Jae Jung. 2001. Linguistic Typology: Morphology and Syntax. London/New York: Routledge.

Sposato, Adam M. 2015. A Grammar of Xong. State University of New York. [PhD]

Spreng, Bettina. 2006. Antipassive morphology and case assignment in Inuktitut. In A. Johns, D. Masasam & J. Ndayiragije (eds.), Ergativity, pp. 247–270. Dordrecht: Springer.

Stassen, Leon. 1985. Comparison and Universal Grammar. Oxford: Basil Blackwell.

———— 2010. The problem of cross-linguistic identification. In J. J. Song (ed.), The Oxford Handbook of Linguistic Typology, pp. 90–99. Oxford: Oxford University Press.

Steeman, Sander. 2012. A Grammar of Sandawe: A Khoisan Language of Tanzania. Leiden University. [PhD]

Stefanowitsch, Anatol. 2002. Causative constructions in Akawaio. In M. Shibatani (ed.), The Grammar of Causation and Interpersonal Manipulation, pp. 341–371. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Stenin, Ivan A. 2017. Non-Causative Effects of Causative Morphology in Chukchi. Higher School of Economics Research Paper No. WP BRP 59/LNG/2017.

Stirtz, Timothy M. 2012. A Grammar of Gaahmg: A Nilo-Saharan Language of Sudan. Leiden University. [PhD]

Storch, Anne. 2014. A Grammar of Luwo: An Anthropological Approach. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Subbarao, K. V. & Murthy, B. Lalitha. 1999. Lexical anaphors and pronouns in Telugu. In B. C. Lust, K. Wali, J. W. Gair & K. V. Subbarao (eds.), Lexical Anaphors and Pronouns in Selected South Asian Languages: A Principled Typology, pp. 217–273. Berlin/New York: Mouton de Gruyter.

Sun, Hongkai & Liu, Guangkun. 2009. A Grammar of Anong: Language Death Under Intense Contact. Leiden/Boston: Brill.

Sung, Li-May. 2006. Verbal Reflexives/Reciprocals in (Some) Formosan Languages. [ms.]

Suttles, Wayne. 2004. Musqueam Reference Grammar. Vancouver/Toronto: UBC Press.

Svantesson, Jan-Olof. 1983. Kammu Phonology and Morphology. Travaux de l'Institut de Linguistique de Lund 18. Lund: University of Lund.

———— 2003. Khalkha. In J. Janhunen (ed.), The Mongolic Languages, pp. 154–176. London/New York: Routledge.

— T —

Tajebe, Esayas. 2015. Descriptive Grammar of Saaho. Addis Ababa University. [PhD]

Tallman, Adam J. 2018. A Grammar of Chácobo, a Southern Pano Language of the Northern Bolivian Amazon. University of Texas. [PhD]

Tanangkingsing, Michael. 2009. A Functional Reference Grammar of Cebuano. National Taiwan University. [PhD]

Tánczos, Orsolya. 2014. Towards an analysis of the causative/non-causative alternation in Udmurt. Acta Linguistica Hungarica 61 (3), pp. 297–315.

Tankó, Enikő. 2016. On the Hungarian Equivalents of the English Passive in Literary Translations: A Case Study on the Translations of Two Novels. Acta Universitatis Sapientiae, Philologica 8 (2), pp. 93–107.

———— 2017. Passive Constructions: Strangers among L1 Speakers of Hungarian? Acta Universitatis Sapientiae, Philologica 9 (2), pp. 107–124.

Teferia, Kumssa D. 2019. A Grammar of Rayya Afaan Oromoo: Documentation and Description. Addis Ababa University. [PhD]

Terrill, Angela. 1997. The development of antipassive constructions in Australian languages. Australian Journal of Linguistics 17 (1), pp. 71–88.

———— 2003. A Grammar of Lavukaleve. Berlin/New York: Mouton de Gruyter.

Tesnière, Lucien. 1959. Éléments de syntaxe structural. Paris: Librairie C. Klincksieck.

Thiesen, Wesley & Weber, David. 2012. A Grammar of Bora with Special Attention to Tone. Dallas: Summer Institute of Linguistics.

Thomas, Michael F. 2014. A Grammar of Sakun (Sukur). University of Colorado. [PhD]

Thompson, Chad. 1996. The Na-Dene middle voice: An impersonal source of the d-element. International Journal of American Linguistics 62 (4), pp. 351–378.

Thompson, Sandra A.; Park, Joseph S.-Y. & Li, Charles N. 2006. A Reference Grammar of Wappo. Berkeley/Los Angeles/London: University of California Press.

Thornes, Timothy J. 2003. A Northern Paiute Grammar with Texts. Eugene: University of Oregon. [PhD]

Tida, Syuntarô. 2006. A Grammar of the Dom Language: A Papuan Language of Papua New Guinea. Kyoto University. [PhD]

Tserenpil, Dandii-Yadamyn & Kullmann, Rita. 2008. Mongolian Grammar.

Tsunoda, Tasaku. 2011. A Grammar of Warrongo. Berlin/New York: De Gruyter Mouton.

— U —

Underhill, Robert. 1980. Case Relations in Modern Greenlandic. Proceedings of the Sixth Annual Meeting of Berkeley Linguistics Society, pp. 457–478.

— V —

Vajda, Edward J. 2004. Ket. Munich: Lincom.

Valenzuela, Pilar M. 2016. “Simple” and “double” applicatives in Shiwilu (Kawapanan). Studies in Language 40 (3), pp. 513–550.

van der Voort, Hein. 2004. A Grammar of Kwaza. Berlin/New York: Mouton de Gruyter.

van Egmond, Marie-Elaine. 2012. Enindhilyakwa Phonology, Morphosyntax and Genetic Position. University of Sydney. [PhD]

Van Gysel, Jens E. L. 2018. Causative-applicative polysemy and its sources. HDLS13 Panel: Empirical Studies of Polysemy in Grammaticalization.

Van Valin, Robert D. (jr.). 2001. An Introduction to Syntax. Cambridge: Cambridge University Press.

———— 2005. Exploring the Syntax-Semantics Interface. Cambridge: Cambridge University Press.

Vater, Heinz. 1978. On the possibility of distinguishing between complements and adjuncts. In W. Abraham (ed.), Valence, Semantic Case, and Grammatical Relations, pp. 21–45. Amsterdam: John Benjamins B. V.

Vázquez Soto, Verónica. Some constraints on Cora causative constructions. In M. Shibatani (ed.), The Grammar of Causation and Interpersonal Manipulation, pp. 197–243. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Velázquez-Castillo, Maura. 2002. Guaraní causative constructions. In M. Shibatani (ed.), The Grammar of Causation and Interpersonal Manipulation, pp. 507–534. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Vidal, Alejandra. 2001. Pilagá Grammar (Guaykuruan Family, Argentina). University of Oregon. [PhD]

Vigus, Meagan. 2016. A Radical Construction Grammar Analysis of Antipassive Constructions. Albuquerque: The University of New Mexico. [MA]

von der Gabelentz, Hans C. 1860. Über das Passivum: eine sprachvergleichende Abhandlung. Leipzig: S. Hirzel.

Vorbichler, Anton. 1965. Die Phonologie und Morphologie des Balese (Ituri-Urwald, Kongo). Glückstadt: Verlag J. J. Augustin.

Vovin, Alexander. 1993. A Reconstruction of Proto-Ainu. Leiden/New York/Cologne: E. J. Brill.

Vuillermet, Marine. 2012. A Grammar of Ese Ejja, a Takanan language of the Bolivian Amazon. Université Lumière Lyon 2. [PhD]

— W —

Wakasa, Motomichi. 2008. A Descriptive Study of the Modern Wolaytta Language. University of Tokyo. [PhD]

Walker, Neil A. 2013. A Grammar of Southern Pomo: An Indigenous Language of California. University of California. [PhD]

Wallis, Ethel E. 1964. Mezquital Otomi Verb Fusion. Language 40 (1), pp. 75–82.

Walters, Josiah K. 2015. A Grammar Sketch of Dazaga. Graduate Institute of Applied Linguistics. [MA]

Washio, Ryuichi. When causatives mean passive: A cross-linguistic perspective. Journal of East Asian Linuigistics 2, pp. 45–90.

Watahomigie, Lucille J.; Bender, Jorigine & Yamamoto, Akira Y. 1982. Hualapai Reference Grammar. Los Angeles: American Indian Studies Center, UCLA.

Weber, David J. 1989. A Grammar of Huallaga (Huánuco) Quechua. Berkeley/Los Angeles/London: University of California Press.

Wegener, Claudia. 2012. A Grammar of Savosavo. Berlin/Boston: De Gruyter Mouton.

Werner, Heinrich. 1997. Die ketische Sprache. Wiesbaden: Harrassowitz Verlag.

Whitehead, Carl R. 2004/2006. A Reference Grammar of Menya, an Angan Language of Papua New Guinea. University of Manitoba. [PhD]

Wichmann, Søren. 2014. Arguments and adjuncts cross-linguistically: A brief introduction. Linguistic Discovery 12 (2), pp. 1–2.

———— 2015. Statistical observations on implicational (verb) hierarchies. In A. Malchukov & B. Comrie (eds.), Valency Classes in the World's Languages, Vol. 1.1: Introducing the Framework, and Case Studies from Africa and Eurasia, pp. 155–181. Berlin/Boston: De Gruyter Mouton.

Wilkins, David P. 1989. Mparntwe Arrernte (Aranda): Studies in the Structure and Semantics of Grammar. Australian National University. [PhD]

Willett, Marie L. 2003. A Grammatical Sketch of Nxa'amxcin (Moses-Columbia Salish). University of Victoria. [PhD]

Wilson, Jennifer. 2017. A Grammar of Yeri, a Torricelli Language of Papua New Guinea. State University of New York. [PhD]

Wise, Mary R. 1990. Valence-changing affixes in Maipuran Arawakan languages. In D. Payne (ed.), Amazonian Linguistics: Studies in Lowland South American Languages, pp. 89–116. Austin: University of Texas Press.

Witzlack-Makarevich, Alena. 2011. Typological Variation in Grammatical Relations. Leipzig: Universität Leipzig. [PhD]

Wojtylak, Katarzyna I. 2017. A Grammar of Murui (Bue): A Witotoan Language of Northwest Amazonia. James Cook University. [PhD]

Wood, Joyce K. 2012. Valence-Increasing Strategies in Urim Syntax. Graduate Institute of Applied Linguistics. [MA]

Wu, Jing-lan J. 2006. Verb Classification, Case Marking, and Grammatical Relations in Amis. State University of New York. [PhD]

— X —

Xolodovič, Aleksandr A. (ed.) 1969. Tipologija kauzativnyx konstrukcij: Morfologičeskij kauzativ. Leningrad: Nauka.

— Y —

Yap, Foong H. & Ahn, Mikyung. 2019. Development of grammatical voice marking in Korean: On the causative, middle and passive uses of suffix *-i*. Lingua 219, pp. 1–23.

Yap, Foong H. & Iwasaki, Shoichi. 1998. The emergence of 'give' passives in East and Southeast Asian Languages. In M. Alves, P. Sidwell & D. Gil (eds.), SEALSVIII: Papers from the 8th meeting of the Southeast Asian Linguistics Society, pp. 193–208. Canberra: Pacific Linguistics.

———— 2003. From causative to passive: A passage in some East and Southeast Asian languages. In E. Casad & G. Palmer (eds.), Cognitive Linguistics and Non-Indo-European Languages, pp. 419–446. Berlin/New York: Mouton de Gruyter.

Yarapea, Apoi M. 2006. Morphosyntax of Kewapi. Australian National University. [PhD]

Yeon, Jaehoon & Brown, Lucien. 2011. Korean: A Comprehensive Grammar. London/New York: Routledge.

— Z —

Zahir, Zalmai. 2018. Elements of Lushootseed Grammar in Discourse Perspective. University of Oregon. [PhD]

Zandvoort, Franklin D. 1999. A Grammar of Matngele. University of New England. [BA]

Zavala, Roberto M. 2000. Inversion and Other Topics in the Grammar of Olutec (Mixe). Eugene: University of Oregon. [PhD]

Zinnatullina, K. Z. 1969. Zalogi glagola v sovremennom tatarskom literaturnom jazyke. Tatknigoizdat.

———— 1993. Zalogi glagola. In M. Z. Zakiev & F. A. Ganiev (eds.), Tatarskaja grammatika, Vol. 2, pp. 161–184. Kazan'.

Zúñiga, Fernando & Kittilä, Seppo. 2019. Grammatical Voice. Cambridge: Cambridge University Press.

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